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PENICILLIN THERAPY OF IMPETIGO CONTAGIOSA AND ALLIED DISEASES

USE OF PENICILLIUM-INOCULATED DRESSING

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Penicillin (purified) has been allocated only to the armed forces and to a few carefully chosen civilians who have telegraphed or telephoned frantically for its precious grains. The amount of red tape needed to obtain this new drug discourages the average physician from even attempting to get the purified product. Penicillin is needed not only for the armed forces but for civilians in urgent need who call for help in desperation.

The field of mold and yeast therapy has only been scratched. Its possibilities are great, as newer concepts and investigations open up this new area in the science of medicine. Possibly penicillin may be outdated in a few years, as more potent inhibitors may be found. A good start in this direction has been made by C. W. Carpenter [1] in Honolulu on a special yeast that in vitro inhibits not only Staphylococcus aureus but Bacillus coli and Bacillus pyocyaneus, two organisms which are not inhibited by penicillin.

Considerable publicity has been given to the use of penicillin parenterally, but little has been presented as to its topical use since the erudite paper of Florey and Florey,[2] who used penicillin (purified) for infections of the mastoid process and the eyes and for chronic wound sinuses and only mentioned its use dermatologically. They used the hygroscopic sodium salt and the calcium salt of penicillin either in a solution with which to wash purulent sinuses or in a petrolatum base for topical application. They incorporated 600 to 800 units per gram of base.

Local application of penicillin was used by Abraham and co-workers [3] on delicate tissues of the central nervous system without any harmful effects. They observed its innocuousness to tissue cells and leukocytes. Much evidence has been accumulated from experiments in vitro and in vivo that penicillin combines two of the most desirable qualities of a chemotherapeutic agent, potent bacteriostatic action and low toxicity to tissue cells. Penicillin is not inhibited by pus, tissue autolysates, peptones and blood. Its bacteriostatic action on streptococci and staphylococci renders the product especially important for use in treatment of diseases of the skin.

Sulfonamide compounds had their sensational use in dermatology [4] and other specialties until numerous cases of local and general sensitization to them altered the advisability of their unlimited use. The number of deaths reported and the evidence of severe cutaneous toxic reactions caused conservative physicians to be cautious in their use.

The sulfonamide drugs act by depressing the metabolism and the growth rate of bacteria. This is effected through interference with a certain enzyme action of the bacterial cell which is thought to displace such essential factors as paraaminobenzoic acid.[5] The sulfonamide compounds must come in contact with the bacteria in sufficient concentration to be effective. Their action is inhibited by the presence of pus, exudates, peptones and enzymatic hydrolysate of

1. Carpenter, C. W.: Assoc. Pathologist of Experiment Station of Hawaiian Sugar Planter Association.

2. Florey, M. E., and Florey, H. W.: General and Local Administration of Penicillin, Lancet **1**:387 (March 27) 1943.

3. Abraham, E. P.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G.; Jennings, M. A., and Florey, H. W.: Further Observations on Penicillin, Lancet **2**:188 (Aug. 16) 1941.

4. Sams, W. M., and Capland, L.: Topical Treatment with Sulfathiazole, Arch. Dermat. & Syph. **44**: 226 (Aug.) 1941. Pillsbury, D. M.; Wammock, V. S.; Livingood, C. S., and Nichols, A. C.: The Treatment of Pyogenic Cutaneous Infections with Sulfathiazole in an Emulsion Base, Am. J. M. Sc. **202**:808 (Dec.) 1941. Lain, E. S.: Sulfanilamide in Glycerin in Local Treatment for Pyodermas, Arch. Dermat. & Syph. **44**:257 (Aug.) 1941. Shaffer, B.: The Use of Sulfanilamide Compounds in Dermatology, Connecticut M. J. **7**:237 (April) 1943.

5. Spink, W. W.: Sulfanilamide and Related Compounds in General Practice, Chicago, Year Book Publishers, Inc., 1941.

casein and certain bacterial products.[6] They have no effect on the immunologic mechanism of the patient. Their activity depresses the bacterial action until such a time as the immunity of the host can take care of the infection.

TOPICAL USE OF PENICILLIN

Penicillin may supplant the sulfonamide compounds for use against many pyogenic infections of the skin. It can be incorporated in ointment bases and cause sufficient bacteriostasis to be helpful in combating pyodermas and even deep pathogenic fungi.[2]

The advantages of local therapy are numerous. The action of the drug is confined to the pathologic site; it makes possible a high local concentration, and the effectiveness of its action can

A 500 cc. bottle containing gauze squares partly submerged in nutrient medium. After the bottle and contents had been autoclaved, the medium was inoculated with a pure culture of P. notatum.

be seen within three days. Local therapy prevents spread of the lesions of the skin and inhibits the normal or saprophytic bacteria from developing pathogenicity as seen in allergic and infectious eczematoid dermatitis.

Physicians are at present unable to obtain the prepared salt of penicillin for topical use. Therefore Robinson and Wallace[7] ingeniously devised moist penicillium-inoculated gauze pads to be used topically. This contribution should help the medical profession until penicillin is released for civilian practice.

Robinson and Wallace described the following process:

> Eight layers of gauze were placed in a Petri dish, and a medium of 2 per cent corn starch, 2 per cent glycerin, 2 per cent dextrose and 1 per cent yeast extract was poured over the gauze. The dish was autoclaved and then inoculated from a pure stock culture of P. notatum and incubated at room temperature. In testing this culture two days later 1 cc. of sterile human plasma was placed underneath the dressing to simulate an open wound. At intervals the fluid was tested and was found to contain a relatively high concentration of penicillin. The highest titer was reached in six days, and when tested the solution exhibited Staph. aureus in dilutions as high as 1:200. After seven days the titer began to decrease. Various modifications of this formula undoubtedly are being used throughout the country.
>
> The experiment station of the Hawaiian Sugar Planter's Association furnished me with similar penicillin gauze pads. Carpenter, Weller and Martin, of the station, used several strains of P. notatum. Weller modified the medium by using the Czpek-Dox formula plus 1 mg. of zinc sulfate and 1 per cent of yeast extract per liter of fluid. Several different formulas were used, but this one gave the greatest concentration of penicillin.

METHOD

Gauze squares (8 thicknesses) 2¼ by 2¼ inches (5.7 by 5.7 cm.) were placed on the bottom of a 500 cc. Baxter bottle in an overlapping shingle arrangement and in such a way that they would rest against the side of the bottle; only about three fourths of the gauze was submerged in the 100 cc. of nutrient medium. The entire bottle was autoclaved. The medium was then inoculated with a pure culture of P. notatum. It was kept for five days at room temperature, by which time penicillin was present in fair concentration. It was then refrigerated until used.

The inoculated medium was checked after five days by the ring test for inhibition of Staph. aureus. An inhibition zone of 45 mm. was obtained. According to the Oxford method of estimating titer, an inhibition zone of 25 mm. is roughly equivalent to 5 units of penicillin per cubic centimeter.

RESULTS OF CLINICAL APPLICATION

Twenty-five patients with pyogenic infections of the skin were used as subjects for a clinical trial. In this study there were 12 with impetigo contagiosa, 4 with ecthyma, 2 with streptococcic infection of the ears, 2 with sycosis vulgaris, 1 with a combined fungus-streptococcus infection of the foot, 1 with staphylococcic-streptococcic ulceration of the leg, 1 with a chronic ulcerated surface wound following a surgical procedure for pyloric stenosis, 1 with a streptococcic infection of a finger with lymphangitis and 1 with an early furuncle of the vulva and chin.

The typical "honeycomb crusts" were not removed from the impetigenous lesions. None of the usual cleaning procedures were used. All

6. Lynch, H. M., and Lockwood, J. S.: Studies on Mechanism of the Action of Sulfanilamide: V. On the Dissociation of the Phenomena of Growth-Stimulation and Sulfanilamide Inhibition of Hemolytic Streptococci, J. Immunol. **42**:435 (Dec.) 1941.

7. Robinson, G. H., and Wallace, J. E.: Inoculated Penicillin Dressings, Science **98**:329 (Oct. 8) 1943.

Summary Data

Patient's Age	Diagnosis and Location	Previous Treatment	Duration of Infection	Treatment	Culture	Clinically Cured	Relapse
C. B. 6 wk.	Impetigo contagiosa of abdomen and face	Boric acid ointment	7 days	Penicillin nutrient medium (liquid)	Staph. aureus	4 days	None
L. J. 3 yr.	Impetigo contagiosa of nose and upper lip	None	4 days	Penicillin nutrient medium (liquid)	Staph. aureus	3 days	None
L. K. 2 yr.	Impetigo contagiosa of cheeks and chin	Sulfathiazole ointment	7 days	Penicillin pad and medium (liquid)	Staph. aureus	6 days	None
F. S. 9 mo.	Impetigo contagiosa of abdomen and chest	None	3 days	Penicillin nutrient medium (liquid)	No	3 days	None
N. A. 11 mo.	Impetigo contagiosa of ears and chin	None	6 days	Penicillin pad and medium	Staph. aureus and nonhemolytic streptococci	6 days	None
A. O. 14 mo.	Impetigo contagiosa of cheeks and nose	None	6 days	Penicillin medium (liquid)	No	5 days	None
A. K. 7 mo.	Impetigo contagiosa of chin	None	3 days	Penicillin medium (liquid)	Staph. aureus	3 days	None
D. S. 3 mo.	Impetigo contagiosa of nose and neck	Sulfathiazole ointment, gentian violet (methyl rosaniline)	11 days	Penicillin medium (liquid)	Staph. aureus	5 days	None
B. E. 1 yr.	Impetigo contagiosa of face	None	7 days	Penicillin medium (liquid)	None	4 days	None
R. L. 15 mo.	Impetigo contagiosa of legs and ears	None	7 days	Penicillin pad and medium	Nonhemolytic streptococci	4 days	None
S. M. 26 yr.	Impetigo contagiosa of entire face, axillas and chest	Sulfathiazole ointment and ammoniated mercury ointment	15 days	Penicillin pad and medium	None	5 days	None
M. K. 24 yr.	Impetigo contagiosa of chin and neck	Gentian violet and sulfathiozole ointment	14 days	Penicillin pad and medium	Staph. aureus	7 days	None
S. U. 20 yr.	Acute streptococcus with lymphangitis of right arm (sensitive to sulfathiazole)	Hot compresses, roentgen therapy	3 days	Penicillin pad and medium	Hemolytic streptococci and Staph. aureus	6 days	None
D. L. 27 yr.	Sycosis vulgaris pubis	Many ointments and lotions	3 mo.	Penicillin pad and medium	Staph. aureus (hairs)	10 days	None
A. L. 47 yr.	Sycosis vulgaris of entire bearded area of face	Roentgen rays, vaccine, ointment and lotions	2 yr.	Penicillin pad and medium	Staph. aureus	10 days	Mild
W. T. 43 yr.	Ecthyma of neck (nape)	Many ointments	3 wk.	Penicillin pad and nutrient liquid medium	Hemolytic streptococci	7 days	None
M. H. 21 yr.	Fungous and streptococcic infection with lymphangitis of foot	None	3 days	Pepicillin pad and nutrient liquid medium	Hemolytic streptococci and Trichophyton gypseum	4 days (lymphangitis)	None
S. S. 29 yr.	Ecthyma and lymphangitis of arm	None	5 days	Penicillin pad and nutrient liquid medium	Hemolytic streptococci and Staph. aureus	6 days	None
M. K. 34 yr.	Streptococcic infection of ears	Drugstore remedies	1 mo.	Penicillin pad	Hemolytic streptococci	6 days	None
J. N. 25 yr.	Streptococcic infection of ears	Fungous remedies	1 mo.	Penicillin pad	Hemolytic streptococci	6 days	None
A. E. 6 mo.	Chronic staphylococcic infection of suture wound	Sulfonamide compounds, ammoniated mercury ointment, gentian violet	5 mo.	Penicillin pad and nutrient medium	Staph. aureus	11 days	None
H. C. 16 yr.	Chronic ecthyma of legs	Many ointment and sulfonamide compounds	2 to 3 yr. with many relapses	Penicillin pad and nutrient medium	None	2 weeks with relapse	Mild
M. H. 31 yr.	Ecthyma of right leg	Boric acid ointment	6 days	Penicillin pad and nutrient liquid medium	Staph. aureus	4 days	None
L. 71 yr.	Chronic staphylococcic ulcer of left ankle	Zinc peroxide, sulfonamide compounds, wet dressings, ultraviolet and roentgen irradiation	3 mo.	Penicillin pad and nutrient liquid medium, yeast solution (Carpenter)	Staph. aureus and B. pyocyaneus	90 per cent healed; still under treatment	None
L. S. 4 mo.	Acute furuncle of chin and vulva	None	3 days	Penicillin pad and nutrient medium	None	Erythema and induration subsided in 3 days	None

lesions of impetigo contagiosa were clear in seven days, and 90 per cent of them were clear of crust and weeping in three days. Three of these infections were resistant to sulfonamide compounds. Each had previous therapy with a sulfonamide drug without change in the objective appearance of the lesions. For 3 of the patients with impetigo 5 per cent sulfathiazole ointment and 3 per cent ammoniated mercury ointment were used simultaneously on grouped impetiginous lesions as a control. The penicillin pads gave better result, in three days and without the danger

of sensitization to mercury or to sulfonamide compounds. There were no instances of sensitivity to the penicillin nutrient medium or pads.

The crude penicillin liquid was given with instructions to the mothers of patients with impetigo and to the other patients treated. They were given 10 cc. of the solution every three days and told to apply some of it to the lesion by the used of an eye dropper three or four times a day. This kept the pad moist and the penicillium growing. The patients were advised to keep the medium in the refrigerator, as it was found that the bactericidal effect was prolonged by refrigeration.

The following cases are recorded to give in more detail the type of lesion treated and the therapy used.

REPORT OF CASES

CASE 1.—S. M., a woman aged 26, was first seen on Jan. 13, 1944, with extensive impetigo contagiosa of the face and chest which had been present for one week. The crusted pustular superficial lesions had begun on her right cheek and had gradually spread by autoinoculation to the entire face and chest.

Because of the multiplicity of the lesions, 5 per cent sulfathiazole ointment was used on the right axilla, 5 per cent ammoniated mercury ointment was used on the left axilla and penicillin pads and the crude penicillin fluid were used on the chest and face. The lesions were examined and the penicillin pads changed every forty-eight hours. In forty-eight hours there was an absence of weeping from the crusts and only a halo of erythema remained on the penicillin-treated areas. The areas treated with sulfathiazole and mercury still had a small crust, with a resolution of the lesions to about 65 per cent.

The entire penicillin-treated area was clear of infection in five days, and only a dry faded area of erythema remained. The areas to which sulfathiazole and mercury had been applied still had a slight infection as evidenced by the minimal weeping surface.

CASE 2.—S. U., aged 20, a Japanese cook, stuck his right thumb nail bed with an ice pick. In three days the finger became swollen and extremely tender and an area of suppuration appeared at the base of the nail. When he was seen on Feb. 23, 1944, there were several erythematous streaks radiating up the right forearm to the cubical fossa. The pain and swelling were intense, and the finger was almost twice its normal size. The temperature was 102 F.; the hemoglobin content, 13.5 Gm.; the red blood cell count, 4,100,000, and the white blood cell count, 9,500, with polymorphonuclears 80 per cent and lymphocytes 20 per cent.

The patient had a history of a sensitivity reaction to sulfathiazole six months previously. His family physician had given him the drug for a common cold, and this had resulted in a severe cutaneous explosion. The face had become edematous, and a papulovesicular rash of the neck and ears had developed. This attack had subsided in twelve days.

This history of sensitivity to sulfathiazole made penicillin therapy imperative. The area of suppuration, at the base of the right thumb, was incised and drained. The wound was packed with a penicillin pad, and the patient was given 10 cc. of penicillin solution to use with an eye dropper to prevent drying of the pad. No other medication was used. Culture of the pus revealed hemolytic streptococci and Staph. aureus.

In twenty-four hours the pain had almost subsided and the streaks were scarcely visible. The swelling had decreased; the wound was still draining, but it was clean. In forty-eight hours the finger was normal in size and decidedly less tender. All lymphangitic streaks had disappeared. The pads were changed every forty-eight hours and kept moist with penicillin liquor, and in one week the lesion was well. The patient returned to work six days after use of penicillin was started.

Many similar infections respond readily to incision and drainage, but the case was presented in detail because of the patient's sensitivity to sulfathiazole. Penicillin pads and the medium were the only medicaments used.

CASE 3.—A. E., aged 6 months, had had a Frede-Ramstedt operation for pyloric stenosis, in July 1943 at the age of 1 month. The final result was excellent except for the failure of the incision in the skin to heal. The family surgeon stated that on the wound had developed recurrently a crusted impetiginous lesion. A sulfonamide compound in powdered form, 2 per cent solution of gentian violet (methylrosaniline) and many ointments were tried without avail.

The baby was referred to my office. On Feb. 1, 1944 the wound was 1½ inches (3.8 cm.) long. A grayish purulent exudate could be easily expressed from it. The edges showed recent attempts at epithelization. Cultures of material from the wound yielded Staph. aureus. The temperature was normal, and the blood count was within normal limits.

A fresh penicillin pad was applied on that day. In forty-eight hours the lesion was cleaner, with less erythema of the border. Penicillin medium was used several times daily with an eye dropper. Four days later the wound was dry and clean, and epithelization had almost closed it. On February 11, ten days later, the lesion had entirely healed, and it has remained so.

CASE 4.—D. L., a housewife aged 27, had repeated attacks of pubic pruritus over a three month period. The lesions were initiated by a burning and itching of the pubic area. Many of the lesions were isolated pustules pierced by a hair; others were erythematous pinhead-sized papules scattered throughout the pubic skin.

The patient had been treated by her family physician for three months without success. The itching was severe and did not respond to any type of therapeusis for more than seventy-two hours. Culture of hairs yielded Staph. aureus.

Penicillin pads and medium were given to the patient on Feb. 16, 1944. In three days there was no objective or subjective change. In six days all the pustules had healed and the surrounding erythematous papular reaction had almost faded. Two weeks later the pubic skin was clear of lesions and the itching had completely subsided. There was a minimal papular rash at the edges of the pubic hair due to sensitivity to Scotch tape which subsided in four days after removal of the allergen. There has not been a relapse.

COMMENT

The production of crude penicillin has many difficulties. There are many green molds that simulate P. notatum and can be distinguished only by careful laboratory cultivation and micro-

scopic examination. Thom [8] has listed at least 400 types of penicillium. Raper and Coghill [9] stated that "not one out of fifty of the blue-green molds encountered belonged to the Penicillium notatum group"; consequently a pure culture of P. notatum must be obtained and kept noncontaminated. This is an extremely important factor, as other saprophytic molds will destroy the original pure culture.

Penicillin therapy will probably supplant therapy with sulfonamide compounds in the near future. The absence of severe general or local reactions when given parenterally is a disconcerting virtue to the advocates of the sulfonamide drugs. Up to the present there has been no serious reaction reported following the local or parenteral use of penicillin.

A pitfall for the local use of penicillin is the possibility that a patient will become penicillin fast [9] by repeated small applications of the impregnated pad, medium or ointment. This danger cannot be minimized, as the future need for purified penicillin may change its therapeutic efficacy.

Penicillin seems to have a bright future in general medicine as well as in dermatology. It can be used in treatment of chronic ulcers of the extremities due to hemolytic streptococci, cellulitis, erysipelas and lymphangitis [2] and almost all pyodermas. The more common pathogens of the skin, Staph. aureus and the streptococci, are quickly inhibited in their growth.

When the purified product becomes available for general use, it can be incorporated in lotions, wet dressings and ointments similar to the forms in which sulfonamide compounds are used. The possibilities of this use for the armed forces could well make it as important to the first aid kit as morphine is to the surgical armamentarium. At least the danger of sensitization is considerably more remote than with the sulfonamide compounds.

The results of titrations of the penicillin pad and the liquor indicated a low penicillin content, varying between 5 and 10 units per cubic centimeter, i. e., giving an inhibition zone (for Staph. aureus) between 25 and 45 mm. The results obtained with this low dose were good in 25 cases of common pyodermas encountered in a dermatologic practice. Florey used a solution of 600 to 800 units per gram of water or petrolatum base for infections of the eyes, but I believe a much smaller dose can be just as efficacious and involve less chance of producing irritation.

8. Thom, C.: The Penicillia, Baltimore, Williams & Wilkins Company, 1930.

9. Raper, K. B., and Coghill R. D.: "Home Made" Penicillin, J. A. M. A. **123**:1135 (Dec. 25) 1943.

SUMMARY AND CONCLUSION

A modified method has been developed for growing P. notatum for the production of penicillin for local use against acute and chronic pyogenic infections of the skin.

A total of 25 patients with common pyodermas encountered in ordinary practice were studied. Twelve had impetigo contagiosa; they were clinically clear of infection as early as three days and not later than seven days after use of the penicillin-containing pads was begun. Four of the patients had previous therapy with sulfonamide compounds without improvement. Results for 2 patients with sycosis vulgaris showed promise that this method may become a new therapeutic means of treating a stubborn recalcitrant infection. In other cases ecthyma, streptococcic lymphangitis, a streptococcic infection of an ear and an abdominal cutaneous wound healed entirely within eleven days. An ulcer of the leg due to Staph. aureus of three months' duration had healed 90 per cent in six weeks after all methods of local therapeusis had been used. Treatment of this patient is continuing.

A warning must again be given as to the growth of home-made penicillin. The possible contamination of the pure culture of P. notatum could render it useless and possibly dangerous. Also penicillin pads and liquor should be tested for their potency by a ring test before they are used.

Topical penicillin therapy will possibly supplant use of sulfonamide compounds or be a valuable adjunct for the armed forces as well as in civilian practice. Its absence of local reaction and sensitivity places the mold in a unique situation in comparison with the sulfonamide compounds.

A possible pitfall in the local use of penicillin is the suggested theory that one may become penicillin fast by repeated small applications of the impregnated pad, medium or ointment. This hypothesis can be proved only by time and experience.

When the purified product becomes available for civilian practice, another potent bactericidal agent will be placed on the physician's shelf which should be as important as Erhlich's "magic bullet."

The crude penicillin pads and solutions for clinical use were furnished by D. M. Weller, J. P. Martin and C. W. Carpenter, of the Hawaiian Sugar Planters Association. Drs. Hiram Miller and Robert Stewart, department of dermatology, University of California Medical School, supplied the cultures of P. notatum used in the initial experiments.

RECURRENT VESICULAR ERUPTIONS APPEARING DURING ADMINISTRATION OF PENICILLIN

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Many medicinal substances have been known to provoke or produce pompholyx, some of them being such unrelated agents as belladonna plasters, iodine applications, ingestion of salicylates,[1] injections of acetyl choline,[2] and ephedrine nasal sprays.[3] However, several possibly causative factors might be involved when vesicular lesions appear during therapy with penicillin, as are illustrated in the following reports.

REPORT OF CASES

CASE 1.—One of us (W. N. G.), a white man 46 years of age, had recently been evacuated from a South Pacific theater of operations. He was first seen on March 30, 1944 for a vesicular eruption of hands and feet appearing within three hours after he received his first injection of 15,000 units of penicillin. Prior to this time there had been summer exacerbations of similar lesions during the past twenty-five years and also several episodes of an intertrigo of the groin, but at no time had any studies of these eruptions been made to ascertain the presence of fungi. He never had any manifest symptoms of allergy, rheumatism, serious illnesses or active foci of infection. In September 1943, while he was in the jungle, there developed an unexplained fever, which had continued since that time in an "undulant pattern." This had been associated with bronchitis, which was productive of copious amounts of clear, frothy sputum, and a concurrent mild type of vesicular outbreak of the hands and feet, followed by desquamation. He had been hospitalized for ten days prior to receiving penicillin, but general physical examination and laboratory studies revealed only a low grade prostatitis, for which the penicillin was given.

The vesicular eruption which resulted from the first injection appeared within three hours and was mild and limited to the sides of the fingers. With each succeeding injection of 15,000 units of penicillin at three hour intervals, new lesions appeared, on both the hands and the feet, as well as maceration and weeping in the groin. As the total dose of 360,000 Oxford units was approached, petechial lesions began to appear in profusion on the dorsa of the toes and more diffusely on the tops of the feet and on the legs and forearms. This whole process quickly subsided after the injections of penicillin were stopped, and a superficial form of desquamation occurred from all the involved portions.

Laboratory Data.—Two specimens of urine showed many leukocytes, but these disappeared without further therapy. On microscopic examination the prostatic secretion did not reveal pus cells, but cultures grew Staphylococcus aureus. Intravenous pyelograms showed nothing abnormal. Complete blood counts, sedimentation rates and results of metabolism tests were normal. Agglutination studies for typhoid, paratyphoid and brucella organisms did not reveal their presence, and the Kahn reaction was negative. Proteus X19 was agglutinated in a dilution of 1:160. Potassium hydroxide preparations of the roofs of the vesicular lesions, removed from the hands and feet and examined microscopically, were negative for mycelium. Cultures on Sabouraud's medium of material from the involved areas grew only colonies of bacteria. A patch test with solution of penicillin (diluted so that 1 cc. was equivalent to 5,000 units) elicited a negative reaction, but the results of intradermal test, using 0.1 cc. (500 units), was positive at the end of ninety-six hours. There was also a positive intradermal reaction to a 1:100 dilution of trichophytin. Many scratch tests performed with extracts of other related and unrelated fungi and molds failed to give any immediate wheal reaction.

Treatment.—Treatment consisted only of use of wet dressings of solution of boric acid during the more acute portion of the attack and paste of zinc oxide (N. F.) after the weeping had been controlled.

CASE 2.—F. B., a white man 20 years of age, a corporal in the Marine Corps, was first seen on March 31, 1944, with an itchy vesicular eruption on the fingers and palms, which had developed about twenty-four hours after his first injection of penicillin. He had had a similar attack involving his hands about a year before, but he had no recollection of any circumstances connected with this episode. There had been a mild amount of itchy scaling on his feet when he had been admitted to the hospital, three weeks before. There was no history of active foci of infection except for the involvement of the right femur by a sclerosing osteomyelitis of two years' duration, which had been diagnosed by roentgen examination and was the reason for the administration of penicillin. The vesicles on the hands reached their height after forty-eight hours of routine injections of 15,000 units of penicillin every three hours. Vesicular lesions did not appear on the feet, nor was there any involvement of the groin. In spite of the fact that the administration of penicillin was not interrupted, the eruption on the fingers and palms had

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1. Muende, I.: Cheiropompholyx, Brit. J. Dermat. **46**:479, 1934.

2. Becker, S. W.: Vesicular and Vesicopustular Eruptions of the Hands and Feet, J. Michigan M. Soc. **41**:111, 1942.

3. Carpenter, C. C.: Pompholyx Produced by Sensitivity to Ephedrine, Arch. Dermat. & Syph. **34**:1028 (Dec.) 1936.

subsided by the third day after their appearance, leaving a residual desquamation which was apparent twenty-four hours before the total dose of 1,000,000 units of penicillin had been administered.

Laboratory Data.—The Kahn reaction was negative. Urinalysis gave normal results. The complete blood count and the differential count were normal except for a leukocyte count of 15,800. Potassium hydroxide preparations of interdigital scales on the feet were negative for fungi by microscopic examination, as were the vesicular lesions on the fingers and palms. An intradermal test with 0.1 cc. of solution of penicillin (500 units) elicited a negative reaction, but there was a strongly positive reaction to a 1:100 dilution of trichophytin. Scratch tests with extracts of related and unrelated molds and fungi produced no immediate wheal reaction.

COMMENT

It is interesting to speculate on the possible causes of these vesicular eruptions. Both patients were sensitive to trichophytin and had prior histories (unconfirmed) of fungous infection. Jadassohn [4] was able to prove through the use of the Schultz-Dale technic in sensitized guinea pigs that pathogenic fungi contain a specific antigen as well as another antigen common to all of them. If the eruptions were due to this fungus-antigen relationship, then it is difficult to understand why in case 2 there was failure to react to the intradermal test with penicillin and why there was a delayed positive reaction in case 1. It has been suggested [5] that dyshidrosiform lesions may result from toxins liberated by foci of infection to which the subject is sensitive. The bactericidal action of penicillin may have been the factor in releasing from these patients' infections excess quantities of toxins and disturbing their normal immunologic balance. Lastly, these vesicular eruptions may be considered as a manifestation of the reaction to penicillin or the contained substances employed in its manufacture.

SUMMARY

In 2 cases therapy with injections of penicillin within twenty-four hours of administration produced typical vesicular lesions in patients who had chronic infections, antecedent histories of dyshidrosis and positive reactions to trichophytin.

4. Jadassohn, W., and others: Analyses of Composite Antigens by Schultz-Dale Technique: Further Experimental Analyses of Trichophytons, J. Immunol. **32**:203, 1937.

5. Wise, F., and Wolf, J.: Dermatophytosis and Dermatophytids, Arch. Dermat. & Syph. **34**:1 (July) 1936. Kémeri, D.: Die Aetiologie der Dyshidrose, Dermat. Wchnschr. **91**:1587, 1930. Andrews, G. C.: Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1938, p. 281.

SULFUR IN DERMATOLOGIC PREPARATIONS

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Sulfur is one of the most useful substances available to the dermatologist, but many sulfur-containing dermatologic formulas as commonly prescribed and dispensed are capable of great improvement. The availability of certain synthetic chemicals and the increasing knowledge of cosmetic bases among pharmacists enable the dermatologist to prescribe preparations which are esthetically more pleasing and of greater therapeutic merit than the preparations now offered.

In order to demonstrate how dermatologic preparations can be improved, two popular types containing sulfur have been chosen as examples. The first of these is a lotion containing precipitated sulfur and camphor. The formula which follows may be considered as typical.

	Gm. or Cc.
Precipitated sulfur	15.0
Spirit of camphor	15.0
Alcohol, 50 per cent, to make	240.0

As commonly dispensed, the product of this formula is subject to wide variation. Since suspension of the sulfur is left to the discretion of the pharmacist, this is often not done; and the result is an unsightly preparation in which the sulfur cannot be dispersed by shaking and is applied to the skin in flakes or masses. If a suspending agent is used by the pharmacist, his usual choice is tragacanth, which does not effectively disperse the sulfur and which results in a sticky residue on the skin.

A comparatively new suspending agent, methyl cellulose, may be used to advantage in this type of preparation, as in the formula which follows.

	Gm. or Cc.
Precipitated sulfur	10.0
Spirit of camphor	10.0
Alcohol	80.0
Solution of methyl cellulose, 2 per cent	30.0
Rose water, to make	240.0

The product has a smooth, creamy appearance, in contrast to the curdy mixture ordinarily seen. In this preparation the sulfur and camphor are in extremely fine particles, thus being easily dispersed by shaking and remaining in suspension long enough to allow the application of a representative portion of the material. The activity of the sulfur is increased by its division into fine particles, and it remains closely adherent to the skin instead of flaking off as in other methods of suspension.

Methyl cellulose may be used effectively in preparations of this type when the concentration of alcohol does not exceed 70 per cent by volume.

Probably no dermatologic formulas are more commonly used than those for ointments containing sulfur and salicylic acid. The formula which follows is typical.

	Gm.
Precipitated sulfur	2.0
Salicylic acid	2.0
Petrolatum, to make	30.0

Ointments of this type are exceedingly greasy and have a pronounced odor of sulfur. When they are applied to the scalp, as they frequently are, it is difficult to remove them. These qualities make such preparations distasteful to the patient, and it may be found difficult or even impossible to obtain from him the degree of cooperation necessary for effective control of his disability.

A preparation having none of these undesirable qualities is illustrated in the formula which follows.

	Gm. or Cc.
Precipitated sulfur	2.0
Salicylic acid	2.0
Oil of rose	0.25
Nongreasy base, to make	30.0

The nongreasy base is prepared as follows.

	Gm. or Cc.
Sodium lauryl sulfate	0.8
Cetyl alcohol	15.0
Glycerin	5.0
White petrolatum	14.0
Water	35.0

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Melt the cetyl alcohol and the white petrolatum on a water bath and heat to 85 C. Mix the sodium lauryl sulfate, the glycerin and the water and heat to the same temperature. Add the aqueous solution to the oily mixture, remove from the heat and stir until congealing takes place.

The nongreasy character of this ointment makes it comparable to a cosmetic and permits its use on areas at times not suitable for a greasy preparation. Since it is of the so-called washable type, it is easily removed from body surfaces, even those which are thickly hirsute. The addition of a perfume oil, such as oil of rose, helps to disguise the odor of sulfur, distasteful alike to the patient and to persons with whom he must associate.

ECZEMATOUS CONTACT DERMATITIS DUE TO MERCURIALS

REPORT OF A CASE OF A REACTION TO TEN PER CENT AMMONIATED MERCURY OINTMENT AND ASSOCIATED WITH MERCURIAL POISONING

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Wise and Sulzberger [1] in an editorial comment on a paper by Wilhelm Greuer, "Fatal Outcome of Treatment of Psoriasis with Yellow Mercuric Oxide," remarked as follows:

This case is instructive and should remain in the memory of all physicians. There was a high degree of apparently allergic hypersensitivity to an ordinary innocuous substance. One of the editors observed a case of psoriasis in which 3 per cent white ammoniated mercury applied once to hands and elbows led to severe, long-lasting and almost fatal erythroderma with cardiac, renal and other visceral complications. Fortunately, these cases are extremely rare. Ordinarily, the yellow oxide of mercury ointments and the low concentrations of white ammoniated mercury can be put even into babies' eyes without the slightest harmful effects. Millions use these preparations with impunity but suddenly some person shows the most devastating, explosive reaction. This holds true not only of mercurials but of nearly all effective drugs; bromides, iodides, salicylates, barbiturates, quinine, sulfonamides. The conclusions are important: (1) No drug should be given except on prescription; (2) No drug should be prescribed unless there is an actual medical indication for its use.

The case to be reported is an example of such an explosive reaction. Although many cases of eczematous contact type dermatitis due to 10 per cent ammoniated mercury ointment had been observed in this dermatologic clinic, in none has so severe a systemic toxic reaction been manifested.

REPORT OF CASE

M. S., a 21 year old white soldier, was admitted to the dermatologic ward on Dec. 19, 1942 with the following history: Five days prior to admission, he noticed some pimples on the left side of his forehead. He was given a ½ ounce (15 Gm.) jar of 10 per cent ammoniated mercury ointment at his dispensary. For two days he applied the ointment twice daily over the affected area, and then he noticed an eruption appearing in the creases of the elbows, axillas and groins. He was ordered to apply the same ointment to these areas, which, in turn, became redder and more swollen. On the day before admission he began to complain of chills, nausea and loss of appetite and was referred to the hospital.

On admission, the only other subjective complaint was an aching discomfort when he opened his jaws. There was no cough, no sore throat, no abdominal pains, no increased salivation, no metallic taste and no diarrhea. Examination revealed a well nourished young man of extremely toxic facies, with a temperature of 104.8 F., a pulse rate of 116 and a respiratory rate of 28. An intensely erythematous morbiliform eruption was distributed over the flexor surfaces of the arms, elbows and forearms, the axillas, the forehead and both crural regions. The eruption was spreading up the abdomen from the pubic region. Beginning desquamation was manifest at the sites of the eruption, and a moderate exudative process was present in the genital region. The skin was hot, and the face had a cyanotic tinge. There was edema of the entire face, especially at the mandibular angles, but neither Stensen's orifices nor glands were swollen. Koplik spots were not visible. The tongue was normal; the throat was slightly injected; a blue-gray discoloration of the gums was present, and there was some edema of the gingival tissue above the canine teeth. The posterior cervical nodes, the inguinal nodes and the lymph nodes at the temporomandibular joints were swollen and tender. There was moderate edema of the genitalia, but the rest of the physical examination revealed essentially normal conditions.

The following diagnoses were made: (1) eczematous contact type dermatitis (with ammoniated mercury as the allergen); (2) beginning "id" (cutaneous manifestation of the absorption of the toxins produced by the reaction of the dermatitis); (3) mercurial poisoning (systematic reaction due to the absorption of the mercury per se).

An emergency examination of the urine for mercury and a complete blood count were ordered. A medical consultation was requested to rule out a fulminating infectious disease (scarlet fever), as the exanthem at the elbow and inguinal flexures might have been secondarily disguised by the application of the ointment.

The urine contained albumin (2+), 1 to 3 red blood cells and 2 to 3 white blood cells per high power field and gave a positive reaction for mercury. The blood count revealed values within normal limits, and the medical consultant found no evidence of any intercurrent infection. The patient was immediately given treatment for mercurial poisoning: forcing of fluids and administration of 5 per cent dextrose in isotonic solution of sodium chloride and sodium thiosulfate (1 Gm. in 10 cc. of distilled water) intravenously as indicated. Cool compresses of solution of boric acid and glycerin were used continuously on the genitalia, face and arms.

Subsequent daily urinalyses failed to show the presence of mercury. The albumin and red blood cells disappeared after the third day. On December 20 the carbon dioxide–combining power of the blood was 53 volumes per cent and there were 453 mg. of chlorides and 30 mg. of nonprotein nitrogen per hundred cubic centimeters. The temperature remained around 103 F. for seventy-two hours and then dropped to normal. The recovery thereafter was uneventful, the mild trismus and the

From the Dermatology Section, Station Hospital, Camp Livingston, La.

1. Wise, F., and Sulzberger, M. B.: Year Book of Dermatology and Syphilology, Chicago, Year Book Publishers, Inc., 1941, p. 72.

blue-gray discoloration of the gums disappearing with the drop in temperature. The contact dermatitis within forty-eight hours after the patient's admission to the hospital exploded into a generalized erythematous maculopapular eruption (the "id"—the cutaneous manifestation of the absorption of the toxins of the contact dermatitis). The eruption responded favorably to colloidal baths every four hours and the application of a bland cream.

Patch tests to establish the identity of the allergen were withheld until the patient was completely well. On Jan. 1, 1943 a pinhead-sized amount of 10 per cent ammoniated mercury was applied to the skin and covered with cellophane and adhesive tape. This was removed in twelve hours because of itching and showed an area of decided redness and swelling about the size of a quarter which was surmounted by minute vesicles. The reaction to a control patch test with petrolatum, the vehicle for the mercury, was negative after three days.

The patient was discharged to duty on January 2, with instructions to refrain from using any mercurials.

COMMENT

In a review of the literature, it was found that few cases of idiosyncrasy to ammoniated mercury ointment have been reported. In Bass's[2] series of 4 cases there was erythema at the site of application, with secondary areas of redness and blebs and sometimes a morbilliform or scarlatiniform eruption. Edema of the skin, fever and enlargement of the spleen were found, and later there was exfoliation. Harper[3] reported 2 cases of generalized rash and stomatitis following application of 10 per cent ammoniated mercury ointment. A case of mercury poisoning from topical application of 15 per cent ammoniated mercury ointment was reported by Wilbar.[4] In this case an 18 month old girl acquired an eruption around a chronically discharging ear to which 15 per cent ammoniated mercury was applied for three weeks. This caused pruritus, generalized scaling, patchy eruptions of an erythematous character, salivation, bluish red cyanotic appearance of the hands and feet and edema of the face, hands and feet. The urine had a trace of albumin and 4 mg. of mercury per liter.

SUMMARY AND CONCLUSION

A 21 year old soldier acquired eczematous contact type dermatitis associated with mercurial poisoning from the use of 10 per cent ammoniated mercury ointment.

The possibility of allergic sensitivity to ammoniated mercury ointment should be borne in mind, and it and similar preparations should be prescribed and dispensed with caution.

2. Bass, M. H.: Idiosyncrasy to Ammoniated Mercury Ointment in Childhood, Urol. & Cutan. Rev. **45**:78 (Feb.) 1941.

3. Harper, P.: Idiosyncrasy to Ammoniated Mercury Ointment: Report of Two Cases, J. Pediat. **5**:794 (Dec.) 1934.

4. Wilbar, C. L., Jr.: Mercury Poisoning from Topical Application of 15 Per Cent Ammoniated Mercury Ointment, J. Pediat. **20**:89 (Jan.) 1942.

IMMUNIZATION THERAPY OF WARTS

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ETIOLOGY

Although Bonjour [1] only thirteen years ago characterized the "theory of the contagiousness of warts" (and condylomata acuminata) as an error, their infectious character must be considered as proved. Observations reported in the literature support this conclusion.

The appearance of warts in pruritic dermatoses, their occurrence in linear scratch marks, their simultaneous presence in members of the same household and their occurrence in physicians following injuries contracted in connection with their removal had long suggested the inoculability of warts. This was definitely proved by Jadassohn's experiments which he demonstrated and discussed at a meeting of the German natural scientists and physicians (Vienna, 1894) and, more extensively, at a congress of the German Dermatologic Society (Graz, 1895).[2] Corresponding reports referring to 1 case each were published by Variot [3] in 1894 and De Fine Licht [4] in 1895.

As early as 1895 Jadassohn,[2] conscious of the hypothetic character of his assumptions, promulgated the opinion that "warts not only are inoculable but are caused by a living germ."

During the following years his results were confirmed by numerous successful inoculations in human beings and in animals (dogs, horses and calves). Similar findings were observed with respect to filiform warts and condylomata acuminata (Royere,[5] Schindelka,[6] Bedel,[7] Cadeac,[8] Frank Schultz,[9] Ullmann,[10] Tuccio and Coppolino [11] and Tièche.[12] Findlay's [13] statement that warts of one species of animal are not transferable to another species was refuted by Frank Schultz [9] and others. Finally, warts were produced by the inoculation of a filtrate of a suspension made from wart material (Ciuffo,[14] Serra,[15] Wile and Kingery [16] and Kingery [17]). This proved the causal importance of a filtrable virus, already shown for molluscum contagiosum (Juliusberg [18]). Shortly afterward it was also demonstrated for condylomata acuminata (Serra [15]) and, more recently, for cattle warts (Creech [19]).

The possible or probable identification of the virus of warts with that of condylomata acuminata, investigated by many authors, is still under discussion.

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1. Bonjour, J.: Théorie psycho-vasomotorice des verrues et des condylomes acuminés, Ann. de dermat. et syph. **1**:209, 1930.

2. Jadassohn, J.: Sind die Verrucae vulgares übertragbar? Verhandl. d. deutsch. dermat. Gesellsch. **5**: 497, 1896.

3. Variot, G., cited by Jadassohn.[2]

4. De Fine Licht, cited by Jadassohn.[2]

5. Royere, J., cited by Schultz.[9]

6. Schindelka, in von Bayer, J., and Froehner, E.: Handbuch der tieraerztlichen Chirurgie und Geburtshilfe, Vienna, Wilhelm Braumüller, 1899-1908, vol. 6.

7. Bedel, cited by Schultz.[9]

8. Cadeac, cited by Schultz.[9]

9. Schultz, F.: Experimentelle Uebertragung von Verrucae vulgares vom Rinde auf den Menschen mit ausserordentlich langer Incubation, Deutsche med. Wchnschr. **34**:423, 1908.

10. Ullmann, E. V.: (*a*) Versuche Kehlkopfpapillome auf Haut und Schleimhaut von Mensch und zu übertragen, Wien. klin. Wchnschr. **34**:599, 1921; (*b*) Aetiologie und Pathogenese des Larynxpapilloms, Ztschr. f. Hals-, Nasen- u. Ohrenh. **3**:514, 1922; (*c*) cited by Ullmann, K., in discussion on Musger: Verrucae vulgares und papillomata mucosae oris, Zentralbl. f. Haut- u. Geschlechtskr. **35**:36, 1931; (*d*) On the Etiology of the Laryngeal Papilloma, Acta oto-laryng. **5**:317, 1923.

11. Tuccio, G., and Coppolino, C.: Inoculazioni di verruche filiformi, Gior. ital. d. mal. ven. **53**:398, 1912.

12. Tièche: Zur Frage der Uebertragbarkeit der spitzen Condylome, Cor.-Bl. f. schweiz. Aerzte **48**:1743, 1918: Krankendemonstrationen, Schweiz. med. Wchnschr. **2**:1318, 1933; abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **49**:121, 1935.

13. Findlay, cited by Rulison.[55]

14. Ciuffo, G.: Innesto positivo con filtrato di verruca volgare, Gior. ital. d. mal. ven. **42**:12, 1907.

15. Serra, A.: Ricerche istologiche e sperimentali sul condilomo acuminato i papilloma del capo e la verruca volgare, Gior. ital. d. mal. ven. **43**:11, 1908.

16. Wile, U. J., and Kingery, L. B.: The Etiology of Common Warts: Report of an Experimental Study, J. A. M. A. **73**:970 (Sept. 27) 1919.

17. Kingery, L. B.: The Etiology of Common Warts: Their Production in the Second Generation, J. A. M. A. **76**:440 (Feb. 12) 1921.

18. Juliusberg, M.: Zur Kenntnis des Virus des Molluscum contagiosum des Menschen, Deutsche med. Wchnschr. **31**:1598, 1905.

19. Creech, G. T.: Experimental Studies of the Etiology of Common Warts in Cattle, J. Agric. Research **39**:723, 1929.

IMMUNITY

In addition to these experimental results, certain clinical observations suggested the influence of immunity in cases of warts and of related diseases. These clinical characteristics are: (*a*) the corymbiform arrangement of small warts (*verrues filles*) which maintain their size around a larger wart (*verrue mère*) (Vidal [20]; Jadassohn [2]); (*b*) the disappearance of even numerous warts after a single wart or a few warts have been removed mechanically, chemically or radiotherapeutically (Halberstaedter,[21] Lewandowsky,[22] Miescher,[23] Tièche,[24] Ritter,[25] Bario de Medina,[26] Young,[27] Pech,[28] Lestideau,[29] Czillag,[30] K. Ullmann,[31] Delanoë,[32] Naegeli,[33] Salaris,[34] R. O. Stein,[35] Cormia [36] and Cirera Terre [37] (this was also observed once in seborrheic warts [Naegeli [33]]); (*c*) the inflammatory reaction in distant warts following local treatment of one wart (Halberstaedter [21]); (*d*) the disappearance of warts following local treatment of condylomata acuminata (Mornet [38]); (*e*) the inflammatory reaction of warts during a systemic treatment, which seems to correspond to the well known Jarisch-Herxheimer reaction in the treatment of syphilis.

PREPARATION OF THE VACCINE

The aforementioned factors induced me to try an immunizing therapy for warts and condylomas and later for possibly related diseases. The material used—a vaccine, I am convinced—is prepared as follows:

Warts and condylomata acuminata are removed with a sharp spoon or a curet under local anesthesia (condylomas can also be removed for the purpose by cutting the peduncles with a flat burner under local anesthesia). The material is cut into small pieces and ground in a mortar with two or three parts of isotonic solution of sodium chloride until a pulpy consistency results. It is kept at room temperature for twenty-four hours. Then it is sterilized for two hours in a water bath at 56 to 60 C., after which it is filtered through gauze in order to remove particles which would not pass the needle and phenolized so that a phenol content of 0.5 per cent results.

It is important to stress the method of sterilization. It is accomplished in a water bath at a temperature of 56 to 60 C. for two hours. Many vegetative forms of common microbes are killed with this procedure. On the other hand, coagulation of proteins (keeping in mind the protein of the germs), which may impair the efficacy of the vaccine, does not occur to any great degree.

My bacteriologic examinations proved this sterilization procedure satisfactory for removal of the germs usually present on the normal skin. Needless to say, no vaccine is used the sterility of which has not been confirmed by cultural examinations on solid and in fluid mediums.

The question has arisen as to whether the wart virus is killed by this process of sterilization. It is known that the filtrable viruses of various diseases are killed at a temperature of 56 C. in a comparatively short time: smallpox virus

20. Vidal, cited by Jadassohn.[2]

21. Halberstaedter, cited by Delbanco.

22. Lewandowsky, F., cited by Delbanco, E.: Verschwinden der Warzen beider Hände nach Roentgenbestrahlung einer Hand, Dermat. Wchnschr. **55**:1524, 1912.

23. Miescher, G.: Ueber Immunisierungsvorgaenge bei Bestrahlung von Warzen und spitzen Kondylomen, Schweiz. med. Wchnschr. **4**:632, 1923.

24. Tièche, in discussion on Miescher.[23]

25. Ritter, C.: Zur Entstehung und Behandlung der Warzen, Berl. klin. Wchnschr. **58**:439, 1921.

26. de Medina, B.: Verrugas planas juveniles, Med. ibera **16**:96, 1922; abstracted, Zentralbl. f. Haut. u. Geschlechtskr. **5**:30, 1922.

27. Young, W. J.: Verruca Vulgaris Treated with Radium, Urol. & Cutan. Rev. **26**:31, 1922.

28. Pech, in discussion on Nini: Traitement des verrues par la suggestion, Presse méd. **31**:357, 1923; abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **10**:51, 1924.

29. Lestideau: Traitement des végétations vénériennes, Arch. de méd. et pharm. nav. **113**:255, 1923; abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **9**:457, 1924.

30. Czillag, S.: Auf partielle Behandlung geheilter Fall von Verrucae juveniles und vulgares, Zentralbl. f. Haut- u. Geschlechtskr. **30**:695, 1929.

31. Ullmann, K.: Zur Behandlung von Warzen, Wien. klin. Wchnschr. **44**:401, 1931.

32. Delanoë, E.: Éruption verruqueuse aux mains et aux pieds chez une fille musulmane, Bull. Soc. path. exot. **25**:325, 1932.

33. Naegeli, O.: Verschwinden einer Aussaat von senilen seborrhöischen Warzen auf electrolytische Entfernung einiger Einzelgebilde, Dermat. Wchnschr. **92**:805, 1931.

34. Salaris, E.: Papillomi multipli (verruca dura e condilomi acuminati) in punti diversi e vicini di una stessa pinna nasale, Studi sassaresi **10**:319, 1932; abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **43**: 172, 1933.

35. Stein, R. O.: Vakzinebehandlung der Warzen und spitzen Kondylome, Aerztl. Praxis **6**:341, 1932; abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **44**: 54, 1933.

36. Cormia, F. E.: Autolysate Therapy for Verruca Vulgaris, Arch. Dermat. & Syph. **30**:44 (July) 1934.

37. Cirera Terre, L.: Verrues vulgaires multiples guéries en deux séances par électrocoagulation, Bull. Soc. franç. d'électrothérap. et radiol. **46**:411, 1937; abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **59**:200, 1938.

38. Mornet, J.: Disparition des verrues vulgaires des mains après cautérisation des végétations vénériennes, Bull. Soc. franç. de dermat. et syph. **40**:619, 1933.

in about fifteen to twenty minutes, the virus of poliomyelitis in about thirty to sixty minutes and the virus of herpes in about thirty minutes. Temperatures of 50 or 50 to 55 C. must be considered as insufficient or at least unreliable. Therefore, I started exposing my vaccine to a temperature of 60 C. for one hour; later I used a water bath at 56 C. for two hours. The latter method generally killed also the common germs, especially the staphylococci and the streptococci, as I was able to conclude from my cultural tests. As a result of many thousands of injections I observed production of warts in only 3 patients; in these the growth of papillomatous warts developed in a single pair of vaccine depots. The location and arrangement showed that without doubt the warts were due to one of my therapeutic injections, made with a vaccine which apparently had not been sterilized satisfactorily; the cause may have been an unstable temperature in the then primitive water bath.

I do not use Berkefeld filters because the material from human warts at my disposal has been too small to give sufficient amounts of filtrate. Furthermore, considerable amounts of the virus may be retained in unfiltrable floccules or in the meshes of the filter. The latter portion of the germs can be washed out from the filters by subsequent filtration of the suspension fluid. However, this is liable to cause excessive dilution of the filtrate, which is already scant, and higher amounts of the diluted vaccine have to be given. The assumption that filtration may weaken the potency of the filtrate has been corroborated by Creech,[19] who obtained more positive results in inoculations of cattle warts when using unfiltered material.

However, the vaccine I prepared from cattle warts was filtered because the material used was, of course, much more contaminated—and with spore-producing germs—than that provided by human warts; its sterilization was much more difficult, if not impossible, without filtration. Moreover, the objections raised against the filtration of human wart vaccine and the use of vaccine filtrate were invalid with regard to cows' warts; enough material was available to make the doses sufficiently strong, and in case the procedure had proved unsatisfactory, I could have concentrated the vaccine by sedimentation and centrifugation after filtration.

ADMINISTRATION OF THE VACCINE

The vaccine is administered to human subjects in the form of injections, given twice weekly; two injections, each of 0.1 cc. are made intracutaneously each time. This procedure is based on experience with the intracutaneous sensitization with various serums.[39]

REVIEW OF PREVIOUS RESULTS

A. Effect of Immunization on Human Beings.[40]—My first series of subjects[41] comprised 112 patients, adults and children, of both sexes. Eighty-five were suffering from warts (verrucae vulgares and verrucae juveniles); 73 were treated with wart vaccine and 12 with a vaccine prepared from condylomata acuminata. Twenty-seven patients had condylomata acuminata and were treated with a corresponding vaccine. An average of 75 per cent of the patients who received more than ten injections were influenced favorably.

The expression "influenced" refers to a response to my treatment, in contrast to a proved resistance. The figures for the "influenced" patients include those who have been cured entirely and a small minority, to be referred to later in the discussion, who under treatment got rid of their warts or condylomas except for a single lesion or a few lesions.

In a second series, 261 persons were treated.[42] One hundred and sixty-eight had verrucae vulgares; 104 of them could be followed; 68 (65.4 per cent) of these were cured or "influenced." Of the subjects who had received up to twenty injections, 53 of 76 (69.7 per cent) were "influenced." Thirty-seven patients were suffering from verrucae planae juveniles; 24 of them could be followed; 21 (87.5 per cent) were "influenced." Fifty-six had condylomas; 36 could be reexamined, and 31 (86.1 per cent) proved to have been treated successfully. Of 25 subjects who had received up to twenty injections, 22 (88 per cent) were cured or "influenced." The entirely resistant patients are of course included among those who received more than twenty injections.

39. Biberstein, H., and Oschinsky, F.: Versuche über die Empfindlichkeit der menschlichen Haut gegen Tiersera, Archiv. f. Dermat. u. Syph. **142**:353, 1923.

40. In giving figures of the percentage of the results, I can, of course, refer only to patients who have remained under my observation until the end of the treatment or to patients who have kept me informed about the course and final outcome. The latter is necessary because sometimes during the weeks following a course of treatments the warts disappear gradually. The cases of the other patients are lost for our statistics; these statistics are unavoidably deficient, as are any concerning patients who have not been under hospital care from the beginning to the end of the treatment. However, since the deficiency concerns positive as well as negative results, I feel justified in using the given figures.

41. Biberstein, H.: Versuche über Immuntherapie der Warzen und Kondylome, Klin. Wchnschr. **4**:638, 1925.

42. Biberstein, H.: Die Immuntherapie der Warzen und Kondylome, Klin. Wchnschr. **11**:1021, 1932.

In a third series, 71 patients were treated with subcutaneous injections of a vaccine prepared from cattle warts.[42] Forty-two had common warts; 13 of 23 (56.5 per cent) who could be reexamined were cured; 11 of 16 (68.87 per cent) who had received from one to fifteen injections were "influenced." Fourteen patients had verrucae planae juveniles; 7 could be followed; all of them proved to be cured or almost cured. Fifteen patients had condylomata acuminata; 9 of the 10 (90 per cent) who could be reexamined were "influenced"; 7 who received up to fifteen injections were "influenced." This refutes the second part of Findlay's statements, that extracts of warts have no curative effect in animals of a different species.

The process of healing manifested itself either by gradual flattening of the warts until they disappeared as if sunk in (like butter on a frying pan) or by drying until they fell off. This may occur simultaneously in all the warts present; however, it may also happen that some of the warts or those of one area disappear earlier than do others in the same subject; such an occurrence does not depend on the location of the warts.

A difference in the response to the vaccination therapy of verrucae vulgares, verrucae filiformes and verrucae plantares could not be demonstrated; this supports the belief of their casual identity.

A few observations of special significance resulted from the series just discussed:

1. A certain percentage of subjects did not respond to the immunization treatment at all.

2. In some, all except one of the warts or condylomas disappeared apparently as a result of the treatment; in 1 such patient the remnant subsided after a considerably prolonged treatment with the vaccine. In the others the remnant finally had to be removed mechanically. Similar observations have been made concerning other methods of treatment, including psychotherapy (H. Fox [43]).

3. Some patients whose warts were resistant to the vaccine responded to a vaccine made from warts or condylomas of another resistant patient. This can be explained by assuming that there are a variety of strains of virus differing in their immunizing qualities. These patients, however, seem to be a minority. The remnants mentioned in the preceding paragraph could also be due to a difference in the infecting strains if one assumes an infection with at least two different strains simultaneously.

4. One observation seems to be of special importance. A girl had been successfully treated with vaccine for warts on her hands. A long time after she had been cured, small verrucous lesions appeared on the upper part of her right arm at the sites of two previous injections of the vaccine. Without doubt they were due to the injection of a vaccine which, by an unfortunate coincidence, had not been sterilized sufficiently. These warts, accidentally inoculated, remained refractory to further vaccination. This case also demonstrates the fact that irritation alone is not sufficient to produce warts, even in a "susceptible" person; if it were, warts would have appeared at some other points where vaccine had been injected into this patient, who had proved and continued to prove vulnerable to warts.

B. Effect of Immunization on Animals.—In further investigations, originally intended to exclude the psychotherapeutic factor as the decisive one in my therapy, made with the veterinarian Dr. Eberhard Suessenbach,[44] we succeeded in curing the papillomatosis of cows (and later of horses) by injections of a vaccine. Its preparation has been previously described. Generally four subcutaneous injections, rarely more, each of 10 cc., administered at weekly intervals were sufficient to accomplish the cure. Twenty-three cows or calves and 2 horses had been successfully treated at the time of our second publication dealing with the subject of warts in animals.

RESULTS REPORTED BY OTHER AUTHORS

The immunizing therapy of warts and related —or possibly related—diseases (condylomata acuminata, papillomatosis laryngis, papillomatosis vesicae urinariae and papillomatosis vesicae felleae) seems to have been used or even attempted comparatively seldom. Only results obtained by investigators who used a vaccine prepared according to my principles and administered it according to my directions sufficiently often, with no interfering treatment, however meaningless it seemed, can be cited in favor or disfavor of the procedure. The omission of additional treatments is necessary because it is not known how far they may be able to influence the immunizing effect. Strict observance of the method is necessary as long as its principles are under discussion, in order to avoid confusion and misleading conclusions. Modifications of the method may be introduced into the discussion when the principles have been decided on.

43. Fox, H.: Common Warts Cured by Mental Suggestion, Arch. Dermat. & Syph. **45**:1 (Jan.) 1942.

44. Biberstein, H., and Suessenbach, E.: Zur Therapie der Hautpapillomatose des Rindes, Tierärztl. Rundschau, 1931, p. 60. Biberstein, H.: Immuntherapie der Warzen und Condylome bei Mensch und Tier, Tr. Internat. Dermat. Cong. (1930), 1931, p. 711.

An unfavorable result was reported by Buschke [45] in a case in which the warts not only had proved resistant to other methods but had recurred after their mechanical destruction. Since there are no special notes about the vaccine used, it probably corresponded to mine.

On the other hand, the vaccine used unsuccessfully by Cormia [36] differed from mine in two significant points: (*a*) It was filtered through Berkefeld filters; as previously explained, this may have weakened the vaccine decisively. (*b*) It was "sterilized" at a temperature of 50 C.

I do not know the effect of such a vaccine, because I did not use it. I consider a temperature of 50 C. generally insufficient to kill the virus, judging from experience with other viruses, as I have explained. My standpoint seems to be corroborated by the experiments Templeton [46] made in order to inoculate warts; positive inoculation resulted with a filtrate previously heated at 50 C. My view is also supported by the fact that 1 of the 12 patients treated by Cormia showed the development of warts at the sites of injection of the vaccine. In view of the sometimes long incubation period, it would be interesting to know whether others of his patients acquired warts.

Cormia observed focal reactions, i. e., exacerbations similar to those following the administration of a bismuth preparation, and he therefore considered them an unspecific effect. Since it is known that in certain cases warts react to arsenic, mercury or bismuth, it is more logical to consider such exacerbations as specific reactions comparable to the Jarisch-Herxheimer reaction observed in therapy of syphilis or to exacerbations in lichen planus during therapy with arsenic. Similar reactions may be observed during immunization therapy and even in remaining warts after surgical removal of one wart.

Cormia was inclined to attribute the failure of his vaccine to the low content of unspecific proteins. This is difficult to understand, because the unspecific proteins would not have passed the filter in a lesser degree than the specific germs. In Cormia's procedure the unspecific protein factors had an even greater chance to survive undamaged than in my procedure, owing to his use of a lower temperature. It seems much more likely, as previously explained, that the diminution in number of specific germs is the cause of the failure of the vaccine used. That the number of specific germs is diminished by filtration seems to be demonstrated by the aforementioned experience of Creech.[19]

Ledo [47] made an interesting observation: Regression of warts during treatment with vaccine was followed by an increase when the use of vaccination was discontinued prematurely.

Successful use of the vaccination therapy for warts and for condylomata acuminata in human beings was reported by T. Baer,[48] R. Jaffé,[49] Covisa and Hombria [50] (Chamberland filter L3), Ledo,[47] E. Hoffmann,[51] R. O. Stein,[52] K. Ullmann [31] and Condé Muñoz [53]; and for papillomatosis laryngis by E. Ullmann.[54] For the last condition and for the only patient with rapidly progressive papillomatosis vesicae urinariae whom I treated, and whose lesions soon turned out to be malignant, the results were negative.

Summarizing, one may say (in contrast to the conclusion of Rulison [55]) that the majority of the authors—nine of eleven— who used the vaccination therapy had satisfactory results. Of the two who did not succeed, one (Cormia) had used a modification which was liable to weaken the potency of the vaccine.

Many veterinarians obtained excellent results (about 100 per cent) in animals with a vaccine prepared from cows' warts. Hasitschka [56] successfully inoculated 2 dogs with an autovaccine

45. Buschke: Multiple harte recidivierende Warzen, Zentralbl. f. Haut- u. Geschlechtskr. **20**:642, 1926.

46. Templeton, H. J.: Long Incubation Period of Warts, Arch. Dermat. & Syph. **32**:102 (July) 1935.

47. Ledo, E.: Ueber gewöhnliche Warzen und spitze Kondylome, Med. ibera **1**:579, 1929; abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **32**:802, 1929.

48. Baer, T.: Ein Fall von Warzen mit Vaccine behandelt, Zentralbl. f. Haut- u. Geschlechtskr. **22**:28, 1927.

49. Jaffé, R.: Verrucae durae, München. med. Wchnschr. **73**:1864, 1926.

50. Covisa, J. S., and Hombria, M.: Recidivierende spitze Condylome, Heilung mit Autofiltraten, Actas dermo-sif. **21**:20, 1928; abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **30**:777, 1929.

51. Hoffmann, E.: Zwei Faelle von Epidermodysplasia verruciformis und polymorpher Warzenerkrankung, Zentralbl. f. Haut- u. Geschlechtskr. **20**:269, 1926.

52. Stein, R. O.: (*a*) Die Behandlung von Warzen und spitzen Kondylomen mit intracutanen Injectionen von Warzenextracten, Wien. klin. Wchnschr. **44**:368, 1931; (*b*) Vakzinebehandlung der Warzen und spitzen Kondylome, ibid. **45**:1068, 1932.

53. Condé Muñoz, J. M.: Nota previa sobre el tratamiento de los papilomas venéreos por heteroextractos papilomatosos, Actas dermo-sif. **32**:816, 1941; abstracted, Arch. Dermat. & Syph. **45**:588 (March) 1942.

54. Ullmann, E.: Zur Biologie der Haut- und Schleimhautpapillome, Dermat. Wchnschr. **91**:1864, 1930.

55. Rulison, R. H.: Warts: A Statistical Study of Nine Hundred and Twenty-One Cases, Arch. Dermat. & Syph. **46**:66 (July) 1942.

56. Hasitschka, L.: Abheilung von Papillomen in der Mundschleimhaut eines Hundes mittels einmaliger subcutaner Injection von Warzenbrei, Wien. tierärztl. Monatschr. **14**:16, 1927.

which had not been sterilized. Leue [57] within eight weeks successfully treated 9 severely ill calves with a cows' wart vaccine (100 Gm. of warts to 1 liter of water) which had passed Berkefeld filters but which had not been sterilized otherwise.

Because of its various advantages as compared with other procedures and because of its reliability, the vaccine therapy of warts has also been adopted in the United States. A manufactured vaccine, treated with solution of formaldehyde, yielded not more than 84 per cent cures.

RESULTS IN A NEW SERIES OF CASES

In order to demonstrate my method, I used the vaccine treatment in a series of cases of verrucae vulgares (including verrucae filiformes and verrucae plantares) and verrucae planae juveniles at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital.

TABLE 1.—*Results of Treatment for Verrucae Vulgares*

Injections, Number	Patients Treated, Number	Not Accounted For, Number	Accounted for: Total Number	Number Not Influenced	Number Influenced	Percentage Influenced	
1- 5	11	8	3	0	3	100	
5-10	10	2	8	0	8	100	
11-15	4	0	4	0	4	100	
16-20	9	1	8	3	5*	62.5	
21-25	4	0	4	0	4	100	
26-30	5	0	5	2	3	60	82.3
31-35	2	0	2	0	2	100	
36-40	0	0	0	0	0	...	
41-45	1	0	1	0	1	100	
45-55	2	0	2	1	1	50	

* One patient was treated by Dr. J. Wachtel.

Sixty-one patients had verrucae vulgares. Thirteen of them are still under treatment. Of the remaining 48, 37 could be followed or reexamined; 6 did not respond to the treatment, and 31 (83.78 per cent) proved to have been treated successfully. The results are given in detail in table 1.

Considering the 34 patients who received more than five injections, 28 (82-3 per cent) were influenced favorably. On an average seventeen and six-tenths injections were necessary for a satisfactory result.

Of the 31 patients successfully treated, the first sign of a response to the treatment became manifest after one to five injections in 7, six to ten injections in 10,[58] eleven to fifteen injections in 5, sixteen to twenty injections in 8 and twenty-one to twenty-five injections in 1. Some patients noticed itching or even pain in the warts as the first sign of reaction; in others a multiplication of the warts was the first response. In a few cases a slight pinpoint bleeding in some of the warts preceded the cure.

In the following 5 cases cures were effected with a remnant of residual warts:

CASE 1.—A man 33 years old had numerous warts on his face, neck and both hands; he had been treated with sixteen injections when his warts began to disappear. After sixteen more injections only two warts were left on his hands; these did not respond to a total of thirty-one injections.

CASE 2.—A girl 7 years of age lost all except five of the warts on her face and many of those on her hands after thirty-one injections; three more disappeared gradually with continued treatment (forty-seven injections).

CASE 3.—A 37 year old man had innumerable mostly pedunculated warts on his cheeks, especially in the mandibular-cervical region, and one on the root of his nose. All except the last disappeared after sixteen injections; this one was removed mechanically after nine more injections had failed to "influence" it.

CASE 4.—A 20 year old woman got rid of all except one of the warts on her hands after eighteen injections. This one was removed mechanically.

CASE 5.—One woman got rid of all the warts on her hands and feet except for one on each hand; these did not respond to eighteen injections and were removed mechanically.

There were no recurrences in this series. Former results included, I observed 2 recurrences (or possibly reinfections) in more than 400 patients treated.

A certain percentage of the patients whom I treated successfully had previously been treated with various methods, including surgical removal and desiccation, the sequelae of which could still be seen in some of them.

Summarizing the results in this group of cases with treatment by vaccine, I can say that they correspond to the results obtained in my former investigations regardless of whether the warts were the so-called common or the filiform type and independent of their location (scalp, face, apertures of the face, hands and soles). The only divergence from my previous observations was the slightly higher average of the total number of injections necessary. This could of course be incidental, ascribable to the comparatively small number of patients treated.

Fourteen patients had verrucae planae juveniles. One of them is still under treatment. Of the remaining 13, 10 could be followed or reexamined. Two did not respond to the treatment; 8 (80 per cent) proved to have been treated successfully. The results are given in detail in table 2.

57. Leue: Selbstbereitung eines Warzenaufgusses zur Behandlung der Papillomatose beim Rinde, Tierärztl. Rundschau, 1933, p. 310.

58. This corresponds to the experience of Dr. G. M. MacKee (personal communication); in cases of warts which responded to treatment of this or another kind, he observed the first sign of a reaction after the third week.

TABLE 2.—*Results of Treatment for Verrucae Planae Juveniles*

Injections, Number	Patients Treated, Number	Not Accounted For, Number	Accounted for				
			Total Number	Number Not Influenced	Number Influenced	Percentage Influenced	
1- 5	1	1	0	..	..	...	
6-10	4	0	4	0	4	100	
11-15	3	1	2	0	2	100	
16-20	2	1	1	0	1	100	80
21-25	1	0	1	1	0	0	
26-30	1	0	1	1	0	0	
31-35	1	0	1	0	1	100	

Among the 8 patients treated, the first sign of a response to the treatment became manifest after three injections in 1, four injections in 4, ten injections in 2 and eighteen injections in 1. It consisted of exacerbations, itching or gradual fading of the lesions.

Two patients had, in addition to the verrucae planae, a few verrucae vulgares. The verrucae planae were cured entirely after nineteen and eight injections respectively. The first-mentioned patient, with extensive verrucae planae which had resisted various kinds of treatments for years, lost two groups of filiform warts on his scalp after a total of thirty injections; but a group of verrucae vulgares on his right wrist and another on his scalp did not respond to the treatment. The second patient began to lose his common warts with the ninth injection, but he was not seen again. Two boys (patients accounted for in this series), having been successfully treated for verrucae planae of their faces about a year previously, came back with recently developed verrucae vulgares on their hands. Both reacted again to the vaccination treatment.

Only 1 patient suffering from condylomata acuminata was treated, and that was at a time when only a wart vaccine was at my disposal. He did not respond. I mention this case for the sake of completeness, although it does not prove anything in comparison with the previous record, cited in the introductory part, of more than 85 per cent favorable results obtained in a greater number of cases of condylomata acuminata.

IMMUNIZATION OR SUGGESTION?

In the first of my publications regarding the immunization therapy of warts and condylomas, I discussed a problem the serious consideration of which seemed ridiculous to some people at that time, i. e., the question whether the results of the immunotherapy are really due to immunization or to psychotherapeutic suggestion. The objections made during the time which followed the first publication seem to have justified my "prophylactic" refutations.

In another paper I have reported the theories of the psychotherapeutists as objectively as possible [42]; it is not necessary to repeat them.

I am far from denying results of psychotherapy for warts, even though I never was able to obtain any (see also Jadassohn [59]). However, I reject the theory of the psychotherapeutic effect with regard to the immunization therapy, and I feel obliged to point out the factors which disprove statements such as these: Any wart therapy contains a suggestive factor, and many results of wart treatments published (including those accomplished with medicaments, irradiation or vaccination) are—at least to a certain part—due to such a factor (Bloch [60]); the "contrast between B's [Biberstein's] success and Cormia's failure by identical methods seems probably due to suggestion; the former author having confidence in his method and Cormia using it after deliberately depreciating the procedure as much as possible to the patient who was about to receive it" (Stokes and associates [61]).[62]

Before any results of therapy of warts are ascribed to suggestion, the following fact should be kept in mind: Everybody who treats or observes warts knows that spontaneous healing may occur at any time. Memmesheimer and Eisenlohr,[63] eliminating psychotherapeutic factors as far as humanly possible, tried to determine the percentage of spontaneous cures; they found 23.7 per cent in cases of verrucae vulgares and 34.4 per cent in cases of verrucae planae, i. e., an average of 28.6 per cent. Among 140 patients with warts, 70 of whom were treated with psychotherapy and 70 of whom had remained untreated, 17 of the first group and 20 of the second group were cured during the time of observation. Therefore, percentages of cures equaling the figures mentioned are meaningless for a discussion of successes with regard to psychotherapy.

59. Jadassohn, J., in discussion on Sack, W. T.: Zur Psychogenese und Psychotherapie der Hautkrankheiten, Zentralbl. f. Haut- u. Geschlechtskr. **18**:487, 1926.

60. Bloch, B.: Ueber die Heilung der Warzen durch Suggestion, Klin. Wchnschr. **6**:2271 and 2320, 1927.

61. Stokes, J. H., and others: Fundamentals of Medical Dermatology, ed. 7, Philadelphia, University of Pennsylvania, Department of Dermatology, 1942.

62. Cormia's method, as previously explained, was different from mine in two most probably decisive points. And, as pointed out in a former paper, "some of our patients, especially when we first introduced our treatment, had not been told what we were aiming at, or it was explained to them with utmost clarity that we were trying out a new method the favorable outcome of which could not be promised at all."

63. Memmesheimer, A., and Eisenlohr, E.: Untersuchungen über die Suggestivbehandlung der Warzen, Dermat. Ztschr. **62**:63, 1931.

Statements like that of Bloch [64] and of Stokes and his associates [61] make it necessary to mention a few points in this sphere.

1. Some authors interpret the term "psychotherapy" too broadly. They regard as psychotherapeutic procedures which, according to present knowledge, cannot be considered as such; for example, the injection of "unspecific," "indifferent" or "bland" material. Some of the material may have a chemotherapeutic effect on the virus, for example, arsenic or bismuth, after the injection of which exacerbations have been observed. Others, e. g., milk, may act as foreign proteins, provoking production of "reacting bodies," among them some which have a specific affinity to the virus. Even if they or others are lacking in any specific character, at least they act on the vegetative nervous system. Its importance for various apparently different reactions will be discussed later.

Cures obtained by Lene Grumach [65] in a high percentage of cases within several months by intramuscular injections of isotonic solution of sodium chloride do not prove their psychotherapeutic character; nor do the intracutaneous injections of saline solution by L. Stein,[66] who obtained 47.9 per cent cures in cases of verrucae vulgares and 71.4 per cent in cases of verrucae planae.[67]

Goodman and Greenwood [68] seem to agree with me regarding the causation of the warts, including plantar warts and condylomata acuminata. They did not obtain unequivocal results with injections of solution of sodium chloride (6 cured of 8 patients treated) and of a bismuth preparation (3 cured of 7 patients treated), and consequently they recommended further investigative use of the specific therapy.

Comparative experiments with more "active" mediums would probably be interesting.

This has been suggested by the investigations of F. Dietel.[69] He treated verrucae planae successfully in 80 per cent of cases with intracutaneous injections of milk; injections of protein-free mediums (taking into account a possible psychotherapeutic factor of injections) did not give as favorable results; verrucae vulgares and condylomata acuminata did not react to either of the mediums.

Lenk [70] had similar experiences with roentgen rays. Verrucae planae, although in a minority, reacted to placebos, while verrucae vulgares never did, although they almost always reacted to roentgen rays.

Finally, Siemens [71] may be cited. He succeeded in curing warts by local injections of arsphenamine (0.33 to 1 per cent) but not by injections of 1 per cent solution of arsenic acid.[72]

All these investigations, made from different viewpoints, show the difference in the activity and in the efficiency of the medicaments used under comparable conditions. These observations should make it impossible to designate, in general terms, as "psychotherapeutic" all the favorable results accomplished in the treatment of warts and related diseases.

Although the psychotherapeutists take the term "psychotherapy" broadly, they are prone to neglect factors which indicate that suggestion cannot be the simple, most plausible, unconditional explanation for successful treatment of warts. Foremost among these is the failure of procedures which have a strong psychotherapeutic effect on many physicians and especially on laymen. These are roentgen rays (Jadassohn [59]) and mechanical removal (the latter giving the patient even the visual assurance of the "definite" elimination of the warts from his body); both procedures often prove to be insufficient to effect the disappearance of warts and to prevent recurrences in the same places. The failures of these methods of treatment are numerous as compared with other less "convincing" methods.

In this connection I may also mention two more observations of my own: (*a*) Injections of vaccine failed in a comparatively great num-

64. Bloch, B., in discussion on Sack, W. T.: Zur Psychogenese und Psychotherapie der Hautkrankheiten, Zentralbl. f. Haut- u. Geschlechtskr. **18**:487, 1926. Footnote 60.

65. Grumach, L.: Ueber Suggestivbehandlung von Warzen, München. med. Wchnschr. **74**:1093, 1927.

66. Stein, L.: Warzenbehandlung mit intracutanen Injectionen von physiologischer Kochsalzloesung, abstracted, Zentralbl. f. Haut- u. Geschlechtskr. **48**:178, 1934.

67. Condé Muñoz, who used vaccine successfully, obtained no benefit with injection of distilled water in the 1 patient he so treated.

68. Goodman, J., Jr., and Greenwood, A. M.: Verrucae: A Review, Arch. Dermat. & Syph. **30**:659 (Nov.) 1934.

69. Dietel, F.: Die Behandlung der Verrucae planae juveniles mit intracutanen Milchinjectionen, Deutsche med. Wchnschr. **54**:2101, 1928.

70. Lenk, R.: Roentgenbestrahlung und Suggestivbehandlung der Warzen, Wien. klin. Wchnschr. **45**: 1408, 1932.

71. Siemens, H. W.: Ueber die Wirkung des Salvarsans auf Warzen (Heilung durch intra-dermale Salvarsaninjection), Arch. f. Dermat. u. Syph. **139**: 113, 1922.

72. Allington (Sulfarsphenamine in the Treatment of Warts, Arch. Dermat. & Syph. **29**:687 [May] 1934) cured 52.5 per cent of a series of 80 patients with warts with injections of sulfarsphenamine and 47.6 per cent of another series of 84 patients with injections of distilled water.

ber of cases of verrucae planae. This disease, which according to some psychotherapeutists is supposed to react to suggestion in almost 100 per cent of the cases, never reached this peak with my procedure, although the injections ("the psychotherapeutic treatment," according to the psychotherapeutists) were given not once but many times. (*b*) Involuntarily I contracted an infection of common warts, most probably because —at that time already confident of the efficacy of the vaccine—I was not cautious in protecting myself while removing warts or condylomas surgically. More than sixty injections of heterovaccine and even autovaccine were of no avail. If the psychotherapeutic factor were the decisive one, the vaccine should have worked in my case. The warts finally disappeared, probably in connection with an infection with high temperature.

2. Sometimes the fact is overlooked that experimental investigations have refuted some of the objections which previously seemed to be obvious:

I treated warts with an extract made from normal human skin [42] with curative results in 30 per cent of cases of verrucae vulgares as compared with 72.5 per cent in cases in which the vaccine was used; in 28.6 per cent of cases of verrucae planae as compared with 90.9 per cent; and in 20 per cent of cases of condylomata acuminata as compared with 90.4 per cent. Thus the results accomplished with the "extract of normal skin" resemble more those observed by Memmesheimer and Eisenlohr [63] in spontaneous healing and differ greatly from the results of immunization. Needless to say, the patients were treated together with those who got injections of vaccine and did not know that they were receiving a different preparation.

In 1 patient each with verrucae vulgares, verrucae planae juveniles and condylomata acuminata treated unsuccessfully with twenty-one, twenty-four and twenty-six injections of extract of normal skin there was prompt response to injections of vaccine; there was also a similar response in cases in which the patients had been treated unsuccessfully with psychotherapy.

After I had failed to transfer warts and condylomas to animals (calves, dogs, monkeys, rabbits and guinea pigs), Suessenbach and I [44] began to treat the genuine papillomatosis of cows (and horses) with injections of vaccine. This therapy proved to be highly successful. This seems—as far as possible—to eliminate the psychotherapeutic factor as the decisive one in our immunization therapy of warts.

SPECIFIC OR UNSPECIFIC IMMUNIZATION?

Although the uncompromising objections of the psychotherapeutists to immunization must be considered as refuted, another question has not been decided, i. e., whether the effect of immunization is due to a specific or to an unspecific action. Continued control experiments showed that injections of phenolized extracts made from normal calves' skin and even injections of 0.5 per cent phenolized isotonic solution of sodium chloride also gave favorable results in treatment of the papillomatosis of cows. Comparative investigations with vaccine and the aforementioned materials, initiated under otherwise strictly constant conditions, had to be discontinued because of extraneous reasons. However, as far as they could be followed, they seemed to indicate: (1) that vaccine acts in smaller doses than extract of normal skin and phenolized isotonic solution of sodium chloride, and (2) that vaccine made according to my procedure acts more reliably than the other mediums mentioned and than the manufactured formaldehyde-treated vaccine.

I shall appreciate it if this publication provides me with an opportunity to continue and to supplement these investigations with a veterinarian, in order to reach a definite decision. That specific procedures are liable to intensify reactions which can also be produced unspecifically is easily conceivable and has its analogies.

HYPOTHETIC EXPLANATION OF THE RESULTS ACCOMPLISHED BY VARIOUS METHODS

On the basis of the preceding discussion and detailed statements, the theory of the effective treatments of warts seems to present itself as follows:

As pointed out, certain procedures supposed to be lacking in any specific activity are far from being so or from being purely suggestive, but they are characterized by stereotypic specific effects. As an example, I referred in a previous paper [42] to the sharp decrease in the number of leukocytes in the peripheral blood following the intracutaneous injection of lactalbumin (Mueller's *Leukozytensturz*); this was regarded as due to an unspecific irritation phenomenon produced by way of the parasympathetic nervous system. The same result can be effected by the intracutaneous injection of isotonic solution of sodium chloride or of air, by a pinprick, by titillation of the auditory canal with a hair pencil and, in persons present in a room, by slamming the door of that room.[73] As another

73. Investigations made and partly published by H. Pollak (Leukozytensturz nach unspezifischen intracutanen Injectionen, Doctor-Dissert., Munich, 1924) under the direction of M. Jessner.

example, I referred to experiments in which intracutaneous injections of isotonic solution of sodium chloride resulted in a lowering of the blood pressure (Luithlen,[74] Luithlen and Molitor[75] and Hoff[76]).

Although one concedes that the reactions following intracutaneous injections are effected by way of the vegetative nervous system, it would be illogical to ascribe identical reactions following titillation of the auditory canal or banging of a door to a mystic mechanism instead of claiming the interference of the vegetative nervous system for them too.

It is significant that the psychotherapeutists of warts stress certain effects which are accomplished by way of the autonomic nervous system: lowering of the blood pressure (Bonjour[77]) and influence of the vegetative centers in the central nervous system acting by way of the vegetative nerve tract, resulting in reactions such as activation of certain cell functions, vasodilatation, and constriction (Bloch,[60] Samek[78] and Zwick[79]).

I have, indeed, demonstrated the importance of the vegetative nervous system in bringing about immune and other reactions. In the experiments concerned,[80] unilateral cervical sympathectomy had been performed on rabbits, varying in time with regard to their sensitization with horse serum or their infection with erysipeloid. Intracutaneous tests on both ears with the corresponding antigen always revealed the stronger reaction on the ear of the dissected side. This was also true for epicutaneous tests made with volatile oil of mustard on other rabbits after unilateral sympathectomy. This difference, as explained in the paper describing these experiments, is not due to a dilatation of the vessels.

If unspecific irritations, such as an injection or a prick with a needle, have certain effects on the autonomic nervous system, the specific ones do not lack this quality. However, they have something additional, i. e., their specific factor, which under certain conditions can increase the unspecific effect.

Relating these reflections to my subject, I feel justified in assuming that suggestion as well as unspecific procedures—and, of course, specific ones—may act by way of the vegetative nervous system, i. e., various impulses may use the same line (conduction wire) and thus put the system into motion. Once this is done, the system is able to accomplish certain effects. Therefore it would not be surprising if identical effects are accomplished when the system, or apparatus, is put to work, regardless of which agent primarily put it into motion. Furthermore, it would be only logical to assume that the effect can be accelerated or intensified if the inducing factor is specific, even though other, unspecific, factors may also be able to induce an action of the system involved.

I think that therapeutic observations and experimental investigations, taking into consideration also the facts submitted by others in the literature, support my hypothesis. It offers a common denominator for the theories developed with regard to the cure of warts and related diseases.

SUMMARY

Clinical and experimental investigations have proved the infectious character of warts and related diseases and have suggested the probable presence of phenomena of immunity. An immunization therapy, consisting of injections of an extract of the lesions, has been based on the factors mentioned. First results of its use were published in 1924; since then reports have been published repeatedly, including also reports of successful treatment of warts in cattle and horses (1930, 1931, 1932). Among hundreds of patients treated, two recurrences (or reinfections?) have been observed. The literature shows that 9 (of 11) authors who used the vaccine made according to my original suggestions (or who at least avoided weakening modifications) had satisfactory results.

This report comprises the results of a series of treatments administered for common warts (including filiform and plantar warts) and verrucae planae juveniles; it was effective in 82.3 and 80 per cent of cases respectively.

On the basis of control experiments and observations of my own and of other investigators

74. Luithlen, F.: Veränderungen der Hautreaction bei Injection von Serum und kolloidalen Substanzen, Wien. klin. Wchschr. **26**:653, 1913.

75. Luithlen, F., and Molitor, H.: Pharmakologische Untersuchungen über die Wirkung intracutaner Reize, Arch. f. exper. Path. u. Pharmakol. **108**:248, 1925.

76. Hoff, F.: Ueber Hautfunction und Intracutaninjection, Med. Klin. **20**:1315, 1924.

77. Bonjour, J.: La guérison des condylomes par la suggestion, Schweiz. med. Wchnschr. **57**:980, 1927; La guérison des condylomes par la suggestion, Presse méd. **36**:61, 1928; Influence of the Mind on the Skin, Brit. J. Dermat. **41**:324, 1929; footnote 1.

78. Samek, J.: Suggestive Behandlung planer Warzen, Zentralbl. f. Haut- u. Geschlechtskr. **26**:775, 1928; Zum Wesen der suggestiven Warzenheilung, Dermat. Wchnschr. **93**:1853, 1931; Zum Wesen der suggestiven Warzenheilung, Zentralbl. f. Haut- u. Geschlechtskr. **30**:177, 1929.

79. Zwick, K. G.: Hygiogenesis of Warts Disappearing Without Topical Medication, Arch. Dermat. & Syph. **25**:508 (March) 1932.

80. Biberstein, H.: The Effect of Unilateral Cervical Sympathectomy on Reactions of the Skin, J. Invest. Dermat. **3**:201, 1940.

I feel justified in considering that the results of this therapy are not due to a psychotherapeutic effect. In addition, I feel obliged to reject the theory that all the results obtained in the treatment of warts are due to suggestion. Many of the results considered by some authors as psychotherapeutic cannot be acknowledged as such. It is most probable (especially since I was able to demonstrate the importance of the vegetative nervous system for inflammatory and immunity reactions in animals after unilateral sympathectomy) that many of the methods used may have one important point in common, i. e., they act by way of the vegetative nervous system.

Further investigations are necessary to determine clearly the specific and the unspecific factors.

CONCLUSIONS

The results accomplished by injections of an extract of warts (and condylomata acuminata) are due to immunizing factors.

In addition to the possibility of using this therapy in any case of warts (and condylomata acuminata), special indications for its use may be stated as follows: (*a*) presence of an excessive number of warts; (*b*) presence of warts in locations in which other methods of treatment are impracticable or inadvisable (subungual region, nail wall and plantar region); (*c*) presence of warts resistant to other methods of treatment which at first seemed more convenient or more advisable, and (*d*) presence of recurrences following the administration of other treatments.

TREATMENT OF PSORIASIS WITH SARSAPARILLA COMPOUND

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Thurmon's [1] report of 62 per cent good results in the treatment of psoriasis with tablets made from an extract of sarsaparilla containing the water-soluble saponin, sarsasaponin, prompted me to use the medicament for a small series of patients under personal observation. The study was carried on over an eighteen month period beginning June 1942 and ending January 1944. Ernst Bischoff Company, Incorporated, of Ivoryton, Conn., supplied the sarsasaponin (Sas-Par) tablets. Each tablet contained 0.25 Gm. of the dried extract.

The mechanism involved in the alleged beneficial effects of sarsaparilla on psoriasis is unsettled. Some [2] have claimed an increase in the cholesterol, phosphatides and total fat of the blood of psoriatic patients. Sarsasaponin, the active ingredient of the Honduras or Mexican sarsaparilla root, has been shown [3] to have a definite chemical affinity for cholesterol. Perhaps the saponin "neutralizes" the excess fats in the blood. However, others [4] have disclaimed any consistent elevation of blood fats in persons with psoriasis. Indeed, Grubb [5] claimed to have cured 3 patients with psoriasis by prescribing a diet rich in butter. At present, one had best regard the use of sarsaparilla for psoriasis as empiric.

CLINICAL DATA

Twenty-seven patients were available for study, 13 men, 13 women and 1 girl. Two sarsasaponin tablets (infrequently four) were taken daily for periods varying from one to nine months. Two patients noted mild nausea; 1 stated that the medication had a laxative effect, while the remainder stated that they had had no reactions of any kind with 1 exception, noted in a subsequent paragraph. The patients' ages, with the exception of that of the girl, varied from 22 to 67 years. The duration of the disease varied from two months to forty-six years, the average being from five to ten years. Four patients had guttate lesions, the remainder (23) having lesions of the plaque type.

Eleven patients used some form of local treatment (usually an anthralin [dihydroxyanthranol] ointment) in conjunction with the sarsasaponin. Apparently, the value of sarsasaponin plus local treatment far exceeds that of sarsasaponin alone. In the group receiving "combination" therapy there was 1 failure (9 per cent), whereas in the group treated with sarsasaponin alone there were 9 failures (56 per cent).

Of the entire group, 7 were greatly improved, 8 moderately improved and 2 slightly improved; 9 received no benefit, and the lesions of 1 were apparently irritated by the medication. If one counts together the greatly improved and the moderately improved, there is a percentage of a little over half (55 per cent) who responded favorably to the medication. One may disregard the slightly improved or consider them among the unimproved.

Men were less favorably influenced than women, the former having 5 good results and 8 poor ones and the latter having 10 good results and 4 poor ones.

COMMENT

The results of this clinical investigation parallel those of similar studies. Thurmon [1] claimed 62 per cent good results (compared with 55 per cent in my series).

The possible effect of local treatment enters the picture, and, indeed, over half my patients who omitted local treatment failed to respond to the sarsasaponin alone. However, the patient who made the greatest improvement had no local treatment. Thurmon [1] found that good results were almost three times as frequent in the group receiving sarsasaponin plus local treatment as in the group receiving local treatment alone. One gets the distinct impression that sarsasaponin plus local treatment is more effective than either measure alone.

It is generally conceded that the drug must be taken over a three month period in order to

1. Thurmon, F. M.: Treatment of Psoriasis with Sarsaparilla Compound, New England J. Med. **227**:128-133, 1942.

2. Grütz, O., and Bürger, M.: Die Psoriasis als Stoffwechselproblem, Klin. Wchnschr. **12**:373-379, 1933.

3. Ransom, F.: Saponin und sein Gegengift, Deutsche med. Wchnschr. **27**:194-199, 1901.

4. Rosen, I.; Rosenfeld, H., and Krasnow, F.: Studies in Psoriasis: I. Lipid Partition and Albumin-Globulin Ratio in One Hundred and Thirty Cases; II. Effect of Administration of Cholesterol (Tolerance Test) on the Lipid Partition and the Albumin-Globulin Ratio, Arch. Dermat. & Syph. **35**:1093-1100 (June) 1937. Madden, J. F.: Cholesterol Balance and Low Fat Diet in Psoriasis, ibid. **39**:268-277 (Feb.) 1939.

5. Grubb, A. B.: Butter in Psoriasis, with Report of Cases, M. Rec. **141**:580, 1935.

give it a fair trial. However, in spite of the fact that the drug was distributed free of charge, 13 (to my knowledge) of my patients took it for only one month. Of these 13, treatment resulted in failure for 8. If improvement occurred promptly, my patients were eager to continue taking the drug. Strangely, the psoriatic patient seems to brand any measure which does not give speedy relief as ineffective, a curious attitude for one with a disease whose course is measured in years or even a lifetime.

A low fat diet is customarily prescribed in conjunction with the sarsasaponin tablets. However, I purposely omitted giving any instructions regarding diet. Two of the patients who were greatly improved were of the thin, asthenic type; for them a low fat diet would have been poorly advised.

One patient claimed that his lesions became "more inflamed" while he was taking the medicament. Thurmon [1] stated that 2 per cent of his patients reacted in this manner. The mechanism of such an exacerbation remains a mystery.

Seasonal influences continue to play a role. One patient was able to control her disease with tar salves, sarsasaponin and natural sunshine. Indeed, she was better with this combined regimen than with any previously used. However, with the onset of winter, she experienced a distinct relapse and hastened to obtain an ultraviolet lamp.

Thurmon [1] stated that lesions of the plaque type respond to sarsasaponin better than the punctate, nummular or guttate lesions. My experience was to the contrary. Large plaques represent old, chronic, often inveterate lesions which traditionally fail to respond to all forms of treatment. Guttate lesions represent relatively early lesions, which are naturally more amenable to therapy.

SUMMARY AND CONCLUSIONS

Twenty-seven patients with chronic psoriasis were treated with an extract of sarsaparilla, the active principle of which is the water-soluble saponin, sarsasaponin, for varying periods. About half (55 per cent) showed a favorable response.

Local treatment (tar salves, anthralin [dihydroxyanthanol] ointment and ultraviolet rays) in combination with the sarsasaponin was more effective than the sarsasaponin alone.

The duration of benefit from the drug is probably limited to the time of administration.

Sarsasaponin, a nontoxic, nonirritating drug, represents a conspicuous addition to the therapeutic agents (for internal use) against psoriasis. It apparently enhances the effect of local therapy, although possessing some independent action. Its use in treatment of psoriasis demands consideration from all physicians interested in relief of the disease.

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AN UNUSUAL FORM OF OCCUPATIONAL DERMATITIS

REPORT OF AN OUTBREAK IN A PLANT MANUFACTURING HYDROCHLORIC ACID

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In a chemical plant engaged for many years in the manufacture of hydrochloric acid, no cases of dermatitis had occurred, except for an occasional accidental acid burn, until nine months ago. At that time a change was made in the manufacturing process. This consisted of the addition of about 0.4 per cent of soft coal to the composition of the salt briquets, from which the acid is made, for the purpose of making them more porous and speeding the reaction. Three days after the new composition was introduced, a suction fan used in pulling the gases through the towers and pipe lines broke down and had to be taken apart to be repaired. Since the plant had to be shut down while this was going on, it was thought an opportune time to clean out one of the five towers in which the hydrochloric acid gas is absorbed with water to make the acid. A yellow waxy deposit was found on the fan and also on the walls of the tower. Thirteen men were engaged for about six days in this operation, and all of them acquired dermatitis of various degrees. The 3 worst eruptions occurred in men cleaning and repairing the fan, on which there was the heaviest deposit of the yellow waxy substance. The faces of these 3 men were inflamed and swollen. The arms, legs and exposed portions of the body were also affected. The parts of the body which were covered with work-soiled underclothes were also affected. The men noticed itching and burning after the first day of the repair work, but they continued at work, the dermatitis increasing in severity so that when the repair was finished some of the men had to lay off from work.

The use of soft coal in the salt briquets was discontinued, as this was thought to be the cause of the outbreak, and charcoal was substituted. It was believed that since charcoal contains a minimum of hydrocarbon gases there would not be any appreciable amount evolved to cause the formation of the yellow waxy deposit, which was thought to be a chlorinated hydrocarbon resulting from the action of hydrochloric acid on the hydrocarbons given off from the coal.

From Dermatoses Section, Industrial Hygiene Division, Bureau of State Services, United States Public Health Service.

After the charcoal-containing formula had been in use for eight months, it again became necessary to clean the tower which had been cleaned on the previous occasion.

When the tower was opened, there was observed a thick deposit on its sides of the same yellow waxy substance noted when it was opened before. A similar deposit was found on the pipe lines leading to and from the tower. This time 27 men were engaged for about six days in cleaning the tower and pipe lines. After the first day they began to notice itching and burning, which increased in severity so that after the job was completed all of them had dermatitis of the face, arms, legs and exposed parts of the body. Again, some of the eruptions were severe, there being edema of the face involving the eyes and ears and requiring a lay-off from work for several days. After the acute inflammation subsided with treatment with wet dressings of solution of boric acid, there remained an eruption consisting of comedos, acne-like cysts and pustules. It resembled the so-called chloracnes resulting from exposure to the solid chloronaphthalenes, chlorodiphenyls and chlorodiphenyloxides. The child of one of the workers acquired the same type of lesions from contact with the father's soiled work clothes.

MANUFACTURING PROCESS

The plant is located next to a salt mine and near sulfur mines. A mixture is made of about 87 parts of salt, 2 parts of calcium sulfate, 1.3 parts of ferric chloride, 7 parts of sodium sulfate, 0.4 part of charcoal and 2 parts of water. This is made into briquets and loaded into a series of reaction chambers.

Sulfur is burned in air; the sulfur dioxide is mixed with steam in a combustion chamber, and the mixture of sulfur dioxide, air and water enters the bottom of the first reaction chamber at a temperature of about 1,100 F. It circulates through the series of five chambers and forms hydrochloric acid, water and sodium sulfate gases. These are at temperatures ranging from 180 to 900 F. They are conducted to the acid plant, which consists of a series of five granite towers, filled with granite, through which the gas

passes. Water circulates through the towers and absorbs the hydrochloric acid. It finally comes out in a 30 per cent solution and is loaded into tank cars.

An analysis of the yellow waxy substance deposited on the walls of the tower and on the fan showed it to consist of oils and waxes, some soluble in alcohol, some in ether and some in naphtha. It also contained 5 per cent by weight of hydrochloric acid.

The oils soluble in alcohol were extracted. They were clear as water, and when the alcohol was allowed to evaporate there was a precipitate of a black flaky substance. The oils and waxes soluble in naphtha were extracted from another sample. They were yellowish and dyed the skin. Fractional distillation of the yellow waxy substance left a residue resembling pitch.

Patch tests were performed on 7 of the workers with (1) the yellow waxy deposit; (2) a white crystalline solid isolated from it; (3) a yellow waxy solid isolated from it; (4) an oil extracted with alcohol, which was highly acid but which was neutralized before use in the test, and (5) a yellow oil extracted with naphtha.

The patch tests were on for twenty-four hours, and the reactions were again read after forty-eight hours.

All the subjects showed a 3 to 4 plus reaction after twenty-four hours to the first patch. This contained 5 per cent by weight of hydrochloric acid, which is a primary irritant.[1] There were no reactions to the other patches, which were all neutral in reaction.

From this it is concluded that the acute dermatitis resulted from the hydrochloric acid contained in the yellow waxy deposit.

The chloracne which remained after the acute dermatitis subsided was undoubtedly caused by the solid and semisolid chlorinated hydrocarbons and pitch which made up the bulk of the yellow waxy deposit. This was formed by the hydrocarbons which were given off both by the coal in the first instance and by the charcoal in the second. The hot gases (1,100 F.) passing over the briquets drove off the hydrocarbons, and the hydrochloric acid chlorinated them. They were deposited in the towers and pipes as a result of cooling and perhaps by impingent force as the gases were sucked through by the fans. Although the sulfur used contains about 1 per cent of hydrocarbons, these are probably burned up in the combustion chamber and do not enter the reaction chambers.

1. This test was performed in order to convince the workers and management of the fact that the hydrochloric acid content was sufficient to cause dermatitis.

The workers most severely affected also showed a melanosis of the face, a dark grayish color reminiscent of the coal tar melanosis resulting from exposure to coal tar pitch.[2] The same workers also complained of a photosensitivity manifesting itself by an abnormal burning sensation of the face when exposed to ordinary sunlight, a symptom occurring as a result of exposure to the heavy distillates of coal tar.

PREVENTION

It would be advisable to take both the coal and the charcoal out of the salt briquets. It may be possible to replace them with some other porous material, such as kieselguhr, which does not give off hydrocarbons.

When workers undertake repairs involving the opening of the absorption tower, pipe lines and fans or when they are exposed to fumes coming from the process, they should be provided with fume-proof clothing and hoods with air line respirators. This clothing should be cleaned daily at the plant, and the workers should not be allowed to take it home. They should also be made to take a cleansing shower and put on clean underclothes daily during the period of work. A sulfonated oil containing a synthetic detergent removes waxes more readily than does soap and water.

TREATMENT

The acute dermatitis should be treated with wet dressings of mild solution of boric acid or of a 1 per cent solution of aluminum acetate until the acute symptoms subside, and then boric acid ointment should be used.

The cysts of chloracne require to be incised and evacuated. Ten to twenty may be so treated two or three times a week.

Comedos may be expressed daily after the skin is treated with hot towels.

SUMMARY

An outbreak of an acute dermatitis, melanosis, photosensitization and chloracne occurred in a plant manufacturing hydrochloric acid.

The combination of lesions resulted from exposure during repair of equipment to pitch and chlorinated hydrocarbons mixed with hydrochloric acid. The chlorinated hydrocarbons and pitch were inadvertently formed in the system as a result of the mixing of coal and charcoal with the salt in order to speed up the process of manufacture.

Dr. W. M. Morgan, of Weeks Island, La., and Mr. Rhinehart, of the Louisiana State Health Department, gave assistance in this study.

2. Foerster, H. R., and Schwartz, L.: Occupational Melanosis from Pitch, Arch. Dermat. & Syph. **39**:955 (June) 1939.

KERATOSIS FOLLICULARIS IS NOT PRIMARILY A FOLLICULAR DISEASE

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In an article on vitamin A therapy in cases of Darier's disease Carleton and Steven [1] stated that it occurred to Peck that "since the chief pathologic change is a follicular dyskeratosis, the disease might possibly be due to vitamin A deficiency." They listed follicular hyperkeratosis as one of the diseases associated with vitamin A deficiency which is amenable to vitamin A therapy. Weidman [2] has expressed the view that "Darier's disease . . . is fundamentally and predominantly keratotic, as witness the original name, dyskeratosis follicularis." Weidman [3] wanted to stress the keratotic feature which may be follicular, but he could recall only 1 case in which the sheath of the follicle participated in the dyskeratosis.

These statements induced me to review the literature and to study the biopsy material from 9 cases of typical keratosis follicularis in an attempt to determine whether the primary lesion of Darier's disease is a follicular keratosis or a dyskeratosis.

REVIEW OF THE LITERATURE

Darier,[4] in his original article, stated that the changes in the disease are principally but not exclusively around the neck of the pilosebaceous glands. White [5] found that the early changes are indistinguishable from those of keratosis pilaris. He stated that the lesion is keratotic or primarily a hypertrophy or modified cornification of the epithelial layers with the starting point in or around the follicular openings. In 1896, Bowen [6] said that it was difficult to understand why there should be such a lack of unanimity as to whether the lesions are essentially follicular or not. He expressed the opinion that the disease is primarily and essentially a keratosis of the mouth of the follicles and that this could be verified in every instance with a hand lens. By histologic examination he demonstrated to his satisfaction that the alteration was essentially follicular. He could not undestand why Boeck was unable to determine that the lesions are in great part confined to the follicles. Boeck [7] found that the rete plugs occurred without relation to the hair follicles and sweat glands and that the hyperkera-

Fig. 1 (case 3).—This shows the usual pathologic picture. A follicle with a dilated orifice filled with loose basket weave keratin. To the right of the follicle there are the typical changes of Darier's disease, lacunas and dyskeratosis. None of these alterations have involved the follicle itself.

From the Department of Dermatology, Johns Hopkins University School of Medicine.

1. Carleton, A., and Steven, D.: Keratosis Follicularis, Arch. Dermat. & Syph. **48**:143 (Aug.) 1943.
2. Weidman, F. D., in discussion on Frank, S. B., and Rein, C. R.: Dyskeratoid Dermatosis, Arch. Dermat. & Syph. **45**:129 (Jan.) 1942.
3. Weidman, F. D.: Personal communication to the author.
4. Darier, J.: Psorospermose folliculaire végétante, Ann. de dermat. et syph. **10**:597, 1889.
5. White, J. C.: A Case of Keratosis (Ichthyosis) Follicularis, J. Cutan. & Genito-Urin. Dis. **7**:201, 1889.
6. Bowen, J. T.: Keratosis Follicularis (Psorospermose Folliculaire Vegetante, Darier), J. Cutan. & Genito-Urin. Dis. **14**:209, 1896.
7. Boeck, C.: Vier Fälle Von Darier'scher Krankheit, Arch. f. Dermat. u. Syph. **23**:857, 1891.

tosis was for the most part above and in the interpapillary pegs but at times in the mouths of the hair follicles and in rare cases about the openings of the sweat glands.

Ten textbooks on diseases of the skin were consulted. Pusey [8] stated that keratosis follicularis is a form of hyperkeratosis beginning in but spreading beyond the openings of the pilosebaceous follicles and that histologic examination shows epithelial hyperplasia beginning in the neck of the pilosebaceous follicles. Stelwagon [9] stated that although most investigators consider that the lesions are follicular, Boeck held the view that the lesions are in a great part not confined to the follicles. Hartzell [10] said: ". . . nor are the lesions confined to the pilosebaceous follicles as at first supposed." McCarthy [11] expressed the opinion that the "invaginations need not correspond to the ordinary follicular openings as originally thought by Darier"; he stated that the invaginations of the epithelium are filled with horny plugs and may or may not correspond to the ordinary follicular openings. Kyrle [12] stated that the changes not only are in hair follicles but may extend out from the follicular borders. Gans [13] found that the lesions of hyperkeratosis follicularis vegetans are usually in hair follicles and occasionally in the sweat ducts or the normal skin but the hyperkeratosis may occur independent of the follicle and the hair may remain intact. Sutton and Sutton [14] wrote that there are small, firm papules at pilosebaceous orifices. In their section on pathology there is no mention of follicular involvement but there is the statement that "the skin glands are not affected." Becher and Obermayer [15] wrote that the histologic picture is characterized chiefly by hyperkeratosis which occurs largely but not en-

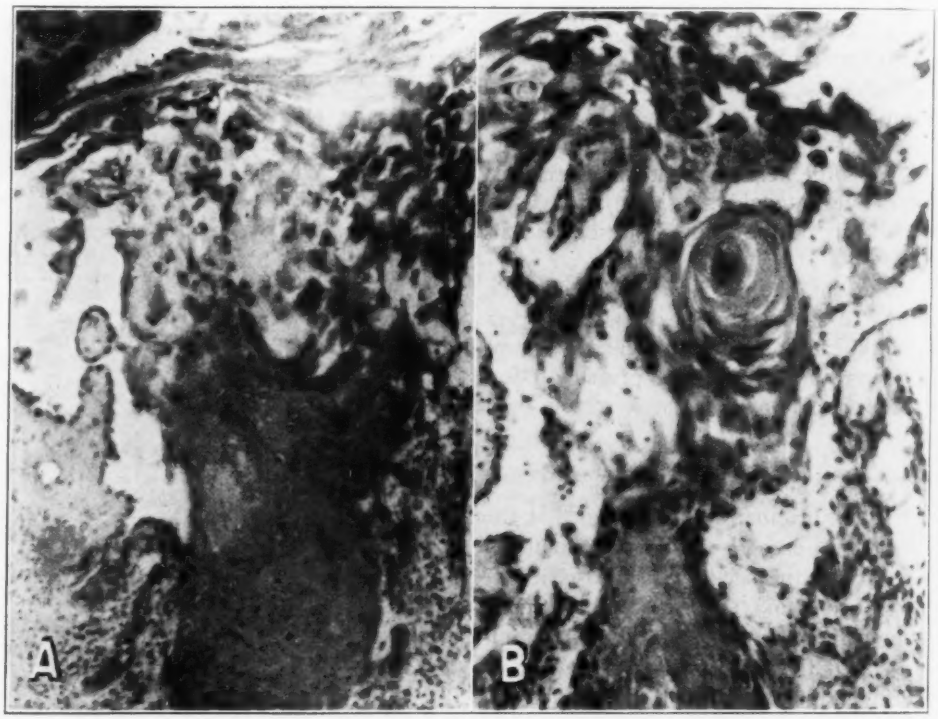

Fig. 2 (case 2).—*A*, the upper two thirds of the follicle shows changes characteristic of keratosis follicularis. *B*, the entire follicle is affected.

8. Pusey, W. A.: Principles and Practice of Dermatology, New York, D. Appleton and Company, 1907, p. 740.

9. Stelwagon, H. W.: Diseases of the Skin, ed. 8, Philadelphia, W. B. Saunders Company, 1916, p. 568.

10. Hartzell, M. B.: Diseases of the Skin, ed. 2, Philadelphia, J. B. Lippincott Company, 1919, p. 480.

11. McCarthy, L.: Histopathology of Skin Diseases, St. Louis, C. V. Mosby Company, 1931, p. 102.

12. Kyrle, J.: Histobiologie der menschlichen Haut und ihrer Erkrankungen, Berlin, Julius Springer, 1925, p. 187.

13. Gans, O.: Histologie der Hautkrankheiten, Berlin, Julius Springer, 1925, vol. 1, p. 70.

14. Sutton, R. L., and Sutton, R. L., Jr.: Diseases of the Skin, ed. 10, St. Louis, C. V. Mosby Company, 1939, p. 592.

15. Becker, S. W., and Obermayer, M. E.: Modern Dermatology and Syphilology, Philadelphia, J. B. Lippincott Company, 1940, p. 235.

tirely about the follicles. Macleod and Muende [16] stated that the histologic picture in early lesions reveals excessive follicular hyperkeratosis but in old lesions the process extends over the whole surface. Ormsby and Montgomery [17] made the statement that there is a hyperkeratosis together with a certain benign dyskeratosis usually in relation to the orifices of the sebaceous glands and hair follicles but often involving the epidermis independent of either.

HISTOLOGIC STUDIES

Histologic studies were made of biopsy sections of ten lesions from 9 patients with typical Darier's disease. Slides from 8 cases of the vesicular type are in the collection, but they are not included in this report. The important and diagnostic features such as the lacunas, acanthosis and dyskeratosis will not be reviewed in detail here. One of the 10 specimens was cut in serial sections. In the 10 biopsies there were forty-four microscopic lesions and twenty-three hair follicles. Only five (11 per cent) of the areas of dyskeratosis were follicular. Five (23 per cent) of the follicles had the lacunas or dyskeratotic changes characteristic of Darier's disease, and only 3 were extensive and extended deeper than the rete pegs (deeper than the neck of the follicles). Nineteen (83 per cent) of the orifices of hair follicles were moderately dilated and filled with a loose keratotic plug. The follicular keratosis was in most instances only moderate, and when compared with several hairy nevi many of the follicular orifices showed similar changes. Thirty-six keratotic plugs were seen which were not apparently follicular. Since the sections were not cut serially, some of these plugs may have been follicular.

The biopsy material from the neck in case 2 will be described in detail (fig. 2). Four follicles were present. Two were cut longitudinally through the middle. The larger one was of the terminal type with a dilated orifice filled with a loose keratotic plug. The follicle was surrounded by a large branching sebaceous gland. There was no evidence of dyskeratosis, but in the restricted part of the neck of the follicle there was a slight tendency to form small lacunas. The smaller follicle was also cut longitudinally through the center. It was filled with keratotic material and many large basophilic granules (pyknotic nuclei). In the perifollicular region there was a moderately dense infiltrate consisting principally of mononuclear leukocytes and a few plasma cells. There was some edema of the cutis which extended into the follicle, but otherwise the rete cells were essentially normal. A follicle (fig. 2 *A*) next to the one just described was cut through the side so that only a piece of hair about twice the size of an epithelial cell was seen surrounded by a large island of the rete cells which was part of the wall of the follicle. The tip of the follicle was normal in appearance. The middle third had a large lacuna on one side which had a single row of basal cells as its base, while the opposite side had several small intraepidermal spaces but no true lacunas. The upper third of the follicle (the portion corresponding to the average depth of the normal rete pegs) and the epidermis on each side contained many large and small lacunas with many *corps ronds* and a few grains. The fourth (fig. 2 *B*) follicle was narrow and was uninvolved, but on each side there was an area about as wide as the space of several interpapillary pegs which showed typical lacunas and other changes characteristic of Darier's disease. Three other areas showed the changes characteristic of Darier's disease, but only one was apparently perifollicular. The dyskeratosis, the lacunas, the hyperkeratosis and frequently the plugging occurred in the interfollicular regions of the rete independent of the hair follicles.

The biopsy specimen in case 7 was from a hypertrophic lesion in the submammary region. The patient had had the disease for sixteen years. The section contained seven hair follicles. Four of the follicles

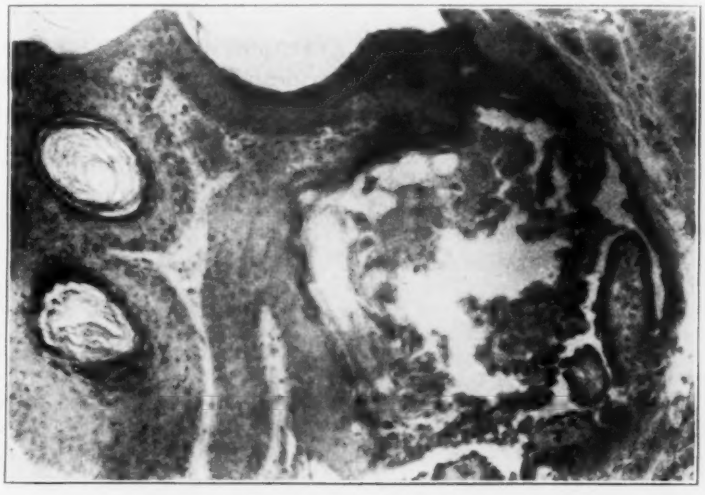

Fig. 3 (mounted on its side) (case 7).—The lower follicle shows a dilated follicular canal filled with keratin. The upper follicle is widely dilated and filled with *corps ronds* and grains, and the wall contains large lacunas.

16. Macleod, J. M. H., and Muende, I.: Practical Handbook of Pathology of the Skin, ed. 2, London, H. K. Lewis & Co., Ltd., 1940, p. 64.

17. Ormsby, O. S., and Montgomery, H.: Diseases of the Skin, Philadelphia, Lea & Febiger, 1943, p. 510.

were dilated and filled with plugs of loose keratin. Two adjacent follicles were greatly dilated (width of three or four interepithelial pegs) and fused at one point to form one large keratotic plug. The plug was composed in the upper part of a loose basket weave keratin. Deeper, the keratin became more compact and in the center contained many grains. The epidermal layer was composed of a few layers of rete cells but showed *corps ronds* and a lacuna characteristic of Darier's disease (fig. 3).

Summary of the Ten Biopsies

Case Number	Location	Number of Microscopic Lesions	Number of Follicles Present	Number of Follicles with Darier's Disease	Keratotic Plugs	
					Follicular	Nonfollicular
1	?	7	5	None	5	3
2A	Hand	2	None	None	None	0
2B	Neck	7	4	1 slight 2 moderate	3	0
3	Forearm	7	2	None	2	4
4	?	4	1	None	2	14
5	Axilla	6	2	None	1	6
6	Chest	2	None	None	0	2
7	Chest	4	7	2 extensive	3	4
8	Neck	3	1	None	0	3
9	Neck	2	1	None	3	0
Total.....		44	23	5	19	36

COMMENT

The fact that typical clinical and histologic lesions of Darier's disease have been found in the mouth and on the palms and soles, where there are no hair follicles, is another reason why this disease is not primarily follicular. One would have to consider the possibility that the process starts in the orifices of sweat or mucous glands. These studies raise some doubt that Darier's disease is principally a keratosis of the follicle or a follicularis dyskeratosis.

SUMMARY

A review of the literature and a study of 10 biopsies from 9 patients with Darier's disease demonstrate that the dyskeratosis seldom affects the hair follicles. The upper part (the neck) of the follicles usually is affected if the follicles are involved. The follicular orifices frequently are slightly dilated and filled with a loose keratotic plug, but these changes are not usually prominent. Keratotic plugs often occur independent of the hair follicles.

CONCLUSION

Darier's disease is a benign dyskeratosis which incidentally affects the hair follicles and is associated with a moderate hyperkeratosis, which may or may not be follicular. Follicular dilatation and plugging occur fairly early, but dyskeratotic follicular alterations appear late, usually in lesions which are clinically hypertrophic.

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SYPHILITIC HEPATITIS WITH UNUSUAL CONCOMITANT MANIFESTATIONS

REPORT OF TWO CASES

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The 2 cases of syphilitic hepatitis here reported presented some unusual features, particularly the occurrence of a gumma of a bronchus in one and of pleurisy with effusion in the other. In the second case symptoms referable to the abdomen were severe enough to lead to exploratory laparotomy, and in both the fever, as often happens, was at first something of a puzzle.

REPORT OF CASES

CASE 1.—A 28 year old East Indian ship's fireman was first admitted to the urologic service[1] of the Long Island College Hospital on April 8, 1942, with the chief complaint of a penile sore. He had last had sexual intercourse one month before admission. Two weeks later he noticed several sores on his penis and pubic region, and five days before admission he observed a swelling in his right groin.

Physical examination showed in the pubic region several small indurated ulcers, 0.5 to 1 cm. in diameter, the margins of which were sharply punched out; on the dorsum of his penis there was a similar large ulcer. A hot, tender, firm swelling was palpated in the right inguinal region.

Laboratory tests revealed a 4 plus Wassermann reaction of the blood, a 3 plus diagnostic Kline reaction, a positive Hinton reaction, a negative Wassermann reaction of the spinal fluid and a flat colloidal gold curve.

During this admission he was given three injections of neoarsphenamine and one of bismuth subsalicylate in oil. The cutaneous lesions gradually healed, and on April 27 he was discharged from the hospital.

He did not return for further treatment, however, until June 23, 1942, at which time he complained that two weeks previously similar lesions had appeared at the base of his penis and on his scrotum and that for the past five days he had experienced blurring of vision, photophobia and pain in his left eye. Consequently, he was admitted to the ophthalmologic service[2] of the hospital.

On this admission the abnormal physical signs were confined to the left eye and the external genitalia. The left bulbar conjunctiva was decidedly injected. The cornea was hazy. Slit lamp examination revealed numerous small deposits in Descemet's membrane and endothelial bedewing. The left pupil measured 4 mm. in diameter, was irregular and did not react to light, whereas the right pupil measured 3 mm. in diameter, was regular and reacted promptly to light. Posterior synechiae were observed in the left eye, and the vitreous fluid was hazy. Both fundi were normal.

The scrotal lesions consisted of three flat indurated ulcers, 0.5 to 1 cm. in diameter. An indurated, sharply punched-out ulcer, 1 by 2 cm., was present at the base of the penis. Bilaterally the inguinal nodes were enlarged, firm and matted together.

The blood count and urine were normal. The Wassermann reaction of the blood was 4 plus, the Kline diagnostic reaction 3 plus and the Hinton reaction positive. Many spirochetes were seen on dark field examination of serum obtained from the penile lesion.

Therapy consisted of use of atropine sulfate eye drops and four periods of typhoid therapy at two to three day intervals. On July 6, five days after the last typhoid reaction, the patient had a chill and a rise of temperature to 103.4 F. His only complaint was feverishness. Physical examination failed to reveal anything abnormal not noted on the original examination. A roentgenogram of his chest showed normal conditions. Sulfadiazine was administered for three days without a favorable reaction. On the seventh febrile day he began to cough and raise thin white mucous sputum. Examination of his chest at this stage revealed flatness to percussion, absence of tactile fremitus and absence of breath sounds at the base of the right lung posteriorly, and a second roentgenogram showed a pleural effusion and evidence of an early pneumonic consolidation at the base of the right lung. The liver was palpable 3 cm. below the costal margin, and the spleen could be felt 1 cm. below the costal margin. Both were smooth, soft and tender. His chest was tapped, and 50 cc. of cloudy straw-colored fluid was removed. This fluid contained 2,500 red blood cells and 3,000 white blood cells per cubic millimeter, 70 per cent of which were lymphocytes, 22 per cent polymorphonuclear cells and 8 per cent large mononuclear cells. No organisms were found on direct smear, and on culture the fluid was sterile. Moderate numbers of streptococci (Streptococcus viridans) and pneumococci were grown from his sputum.

The following additional laboratory data were procured at this time: 1. There were 11,600 white cells per cubic millimeter of blood, of which 49 per cent were polymorphonuclear leukocytes, 46 per cent lymphocytes and 5 per cent monocytes. 2. The sedimentation rate was 24 mm. in one hour. 3. Blood smears repeatedly failed to show malarial parasites. 4. Tuberculin in a dilution of 1:10,000 and brucellergin cutaneous tests elicited negative reactions. 5. The plasma level of total proteins was 5.9 mg. (albumin 3.0 mg. and globulin 2.9 mg.) and the blood level of cholesterol was 177 mg. and of cholesterol esters was 117 mg. The icterus index was 7 and 6 on two occasions. A hippuric acid test showed 0.337 Gm. excreted as benzoic acid in two hours.

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1. Service of Dr. Fedor L. Senger.

2. Service of Dr. John N. Evans.

Despite a three day course of sulfathiazole, the chills and fever continued, and it became apparent that a bacterial infection could not be demonstrated. A review of his course to date revealed: (1) that he had had syphilitic cutaneous lesions (undoubtedly secondary) three months before, which had been inadequately treated; (2) that these lesions had recurred with an accompanying iridocyclitis, and (3) that their recurrence was shortly followed by fever, pathologic pulmonary changes and enlargement of the liver and spleen. The composite picture suggested that all of the lesions were syphilitic in origin.

Consequently, use of potassium iodide was started on July 16. Bismuth subsalicylate was given on July 16 and 21, and injection of mapharsen was started on July 26. His temperature dropped rapidly. It became normal on July 21, rose once and then gradually subsided, to remain normal. The iridocyclitis disappeared in six days. The cutaneous lesions healed promptly. The liver and spleen could no longer be palpated at the end of a week. The pleural effusion, however, was slower in resolving. The fluid could not be removed because the patient refused to be tapped again. He left the hospital against advice on August 8, there still being evidence of some pleural effusion at the base of the right lung. Nevertheless, his temperature was normal, and he was up and about without symptoms.

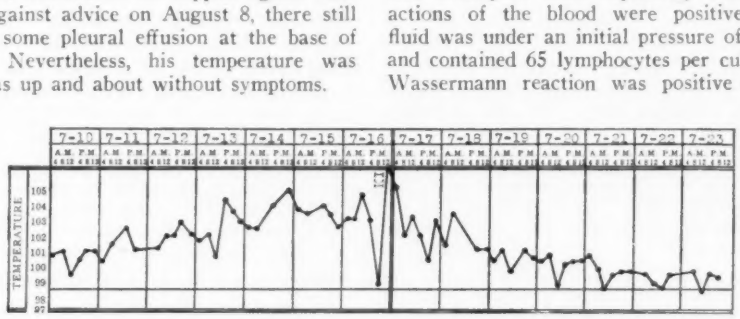

Fig. 1.—From the temperature (rectal) chart of case 1, illustrating the remittent fever and its response to antisyphilitic therapy.

He returned for three injections of mapharsen. When he was last seen, on August 28, he was free of symptoms and was working. His eye showed no evidence of inflammation. There was still present, however, a small area of dulness, diminished fremitus and diminished breath sounds at the base of the right lung. On roentgen examination, the haze over this area had greatly decreased and was indicative of only a small amount of pleural fluid or thickening. All traces of the parenchymal involvement had disappeared. The liver and spleen were not palpable. Only the scars of his condylomas remained.

Departure of the patient from the United States prevented a more complete follow-up study.

Summary.—A 28 year old East Indian received inadequate treatment for syphilitic condylomas. Two months later the condylomas recurred and were accompanied by iridocyclitis, hepatitis and pleurisy with effusion. Fever and chills were prominent. With antisyphilitic therapy the fever disappeared and the lesions promptly improved. It would be difficult to prove, even with microscopic sections, that the pleurisy with effusion was not tuberculous. When one considers, however, the presence of other active syphilitic lesions, the lack of definite evidence of tuberculosis and the prompt response of all lesions to antisyphilitic therapy, it is highly probable that the pleuritis, too, was syphilitic.

Case 2.—A 36 year old Negro West African ship's fireman was admitted to the medical service[3] of the Long Island College Hospital on Aug. 16, 1941, with the chief complaint of epigastric pain. On Oct. 12, 1940 he had experienced the sudden onset of pain in the upper part of his abdomen, severe enough to confine him to his bunk. The pain radiated from the epigastrium to the right upper quadrant. It was dull and persistent and was occasionally aggravated by crampy spasms. He did not feel feverish.

Six days later he was admitted to a Philadelphia hospital. A transcript of his hospital record contained the following information: On admission the temperature was normal. The abdomen was moderately spastic and tender in both upper quadrants. The tenderness was greatest deep in the epigastrium. No masses were palpable.

Laboratory data obtained during this period of hospitalization were as follows: 1. Results of blood counts and urinalyses were repeatedly normal. 2. The reactions of the blood were positive. 3. The spinal fluid was under an initial pressure of 100 mm. of water and contained 65 lymphocytes per cubic millimeter; the Wassermann reaction was positive and there was a midzone rise in the colloidal gold curve. 4. A qualitative van den Bergh test elicited a negative reaction, with a quantitative estimation of 0.3 mg. of bilirubin per hundred cubic centimeters. 5. Repeated examinations of stools gave normal results. 6. Normal conditions were indicated by roentgen examinations (chest, gastrointestinal series, after a barium sulfate enema and gallbladder series).

The patient's symptoms persisted and were not relieved by medical therapy. An exploratory laparotomy was performed. Thick adhesions bound together the liver, omentum and abdominal wall. The mesentery was edematous. The liver, although normal in size, appeared unusually dense. A biopsy of its parenchyma showed evidence of a subacute cholangitis.

The patient's postoperative course was uneventful. The symptoms gradually subsided, and he was discharged on Dec. 17, 1940.

Shortly thereafter, in England, he received two intramuscular antisyphilitic injections. He remained free of symptoms until Aug. 11, 1941, when his abdominal pain returned. This time, however, it was accompanied by feverishness and profuse perspiration, as well as by a throbbing, aching pain in both supraclavicular fossae. These symptoms persisted until his admission to the Long Island College Hospital, five days later.

Physical examination showed the patient to be a middle-aged Negro man, well nourished and well developed, in obvious distress. His pupils were somewhat

3. Service of Dr. Tasker Howard.

irregular. They reacted sluggishly to light but promptly in accommodation. There was no evidence of icterus. A few subcrepitant rales were heard at the bases of both lungs, although the percussion note and breath sounds were normal. The abdomen was somewhat distended. Exquisite tenderness and intense muscular spasm were present in the epigastrium. His liver was palpable 3 cm. below the costal margin. His spleen was not palpable. Both epitrochlear lymph nodes were palpable. Neurologic examination revealed nothing abnormal.

A blood count showed: red cells, 4,120,000; hemoglobin content, 65 per cent, and white cells, 9,600, of which 59 per cent were polymorphonuclear leukocytes and 32 per cent were lymphocytes. Blood smears were repeatedly negative for malarial parasites. Values for blood sugar, urea nitrogen and amylase were normal. The icterus index was 5.5, and the phosphatase activity, 3.5 units. The Wassermann reaction of the blood was 4 plus; the Kline diagnostic reaction, 3 plus; the Kline exclusion reaction, 3 plus, and the Hinton reaction, negative once and positive a second time.

A lumbar puncture yielded fluid under an initial pressure of 80 mm. of water and containing 32 lymphocytes per cubic millimeter. The total protein content was 30 mg. per hundred cubic centimeters. The Wassermann reaction of the spinal fluid was 4 plus, and the colloidal gold curve was 0011232000.

Twenty-three days later the patient's temperature rose to 102 F. He began to cough and expectorate blood-streaked sputum. A few inconstant subcrepitant rales were audible at the base of the right lung posteriorly. The liver was still palpable. Examination of the sputum revealed hemolytic streptococci but no acid-fast bacilli. On roentgen examination a small area of infiltration was noted at the base of the right lung.

It was suspected that the potassium iodide had broken down a pulmonary tuberculous lesion, and use of the drug was discontinued. Repeated examinations of sputum, however, did not reveal acid-fast bacilli. He was given sodium sulfathiazole but failed to respond. Yet when potassium iodide was again administered his temperature dropped sharply to normal.

The course of this pulmonary lesion in the absence of tubercle bacilli suggested the reaction of a bronchial gumma to potassium iodide. Consequently, bronchoscopy was performed, and a barlike elevated granulomatous process was revealed on the posterior wall of the main bronchus of the lower lobe of the right lung. Biopsy of a specimen from this area, however, showed only normal mucous membrane. The outline of the bronchial tree of that lobe (visualized with iodized poppyseed oil) was normal.

The sputum decreased in amount but remained bloody for nearly a month. The area of infiltration gradually cleared until only increased peribronchial markings

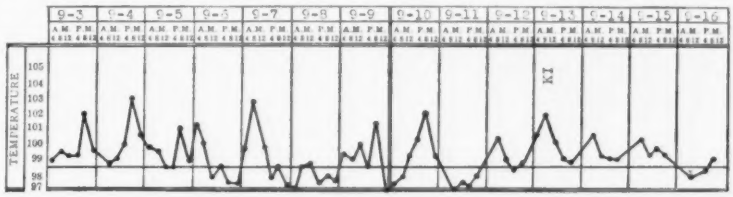

Fig. 2.—From the temperature (oral) chart of case 2, illustrating the intermittent fever and its response to potassium iodide.

The blood was repeatedly sterile on culture. Results of agglutination tests for typhoid, paratyphoid and brucellosis were all negative. The stools showed no evidence of ova or parasites, and cultures yielded only Bacillus coli and enterococci. Roentgen examination of the abdomen and the skull revealed normal conditions.

Although the patient's temperature was normal on his admission to the hospital, it promptly rose to 101.4 F. and oscillated daily between 98 and 103. The abdominal symptoms and signs were so acute that the possibility of surgical intervention was entertained, and he was transferred to the surgical service.[4] The fever and abdominal pain continued, but the muscular spasm disappeared. White blood cell counts varied from 8,400 to 14,000, with the neutrophils ranging from 59 to 76 per cent. A hippuric acid test showed an excretion of only 0.564 Gm. of benzoic acid in two hours. The results pointed to an inflammatory process in or about the liver. Since sufficient evidence could not be compiled to substantiate a diagnosis of subdiaphragmatic abscess, amebic abscess or ecchinococcus cyst, it was suggested that the lesion might be syphilitic. Therefore a trial course of potassium iodide was prescribed. Forty-eight hours after the initial dose the patient's temperature became normal and remained so. He was returned to the medical service and a course of mercuric oxycyanide was started.

4. Service of Dr. Emil Goetsche.

remained as evidence of the inflammatory process. A second bronchoscopy, performed one month after the first, showed only narrowing of one small bronchus in the lower lobe of the right lung.

Meanwhile, the patient had received two courses of mercuric oxycyanide, interrupted by a course of bismuth subsalicylate. With the subsidence of the pulmonary lesion he rapidly improved, and on Jan. 26, 1942 he was discharged from the hospital as being fit for work. His departure from the United States prohibited a follow-up study.

Summary.—A 36 year old West African, who was thought to have latent syphilis, complained of epigastric pain. A laparotomy revealed only adhesions about the liver. The pain disappeared spontaneously, but it reappeared after inadequate antisyphilitic treatment and was accompanied by fever. A diagnosis of syphilitic hepatitis was made, and the pain and fever responded promptly to iodides and a mercurial. During treatment a bronchial gumma became evident, but it disappeared with further therapy. Here, again, one cannot distinguish absolutely between tuberculosis and syphilis of the bronchus, but the absence of tubercle bacilli from the sputum and the eventual response to iodides are impressive evidence against tuberculosis.

DERMATITIS FROM LEMON GRASS OIL (CYMBOPOGON CITRATUS OR ANDROPOGON CITRATUS)

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Dermatitis has been reported from contact with many plants and grasses, but, to the best of my knowledge, there have been no reports in the literature of dermatitis caused by lemon grass oil. In the lists of cutaneous irritants, including those from tropical plants, prepared by J. C. White [1] and by Weber,[2] lemon grass oil does not appear. V. Pardo-Castello, in his report on dermatitis venenata due to tropical plants,[3] did not mention lemon grass oil, nor did Prosser White [4] record an instance of dermatitis due to this oil. Peck [5] stated that the Dermatoses Investigations Section of the United States Public Health Service has no information "about dermatitis from these grasses or their oils, including citronella."

Lemon grass oil is described by the "Dispensatory of the United States of America" [6] as follows:

> It "is the oil distilled from *Cymbopogon citratus*, Stapf, and *Cymbopogon flexuosus*, Stapf." *Br. 1914.*
>
> Both of these grasses are indigenous to India.
>
> It was officially described in the British Pharmacopœia, 1914, as "Dark yellow. Odor resembling that of verbena. Specific gravity 0.880 to 0.905; *optical rotation* $-3°$ to $+3°$. Contains not less than 70 per cent of aldehydes. . . ." The chief aldehyde present is citral. The principal use of the oil is as a source for manufacturing ionone [a complex synthetic perfume] and in perfuming cheap soaps.

Van Nostrand's "Scientific Encyclopedia" [7] contains the following statement: "Certain grasses also yield fragrant oils. Among these are *Cymbopogon citratus*, a native of India and Ceylon, from which is obtained lemon grass oil, used as an adulterant for lemon oil, as well as for its own fragrance, and *Cymbopogon nardus*, from which citronella oil is obtained."

Inquiry at the Dermatoses Investigations Section of the United States Public Health Service [5] brought this reply: "Lemon grass is the term which is applied to any of several East India perennial tufted grasses (Andropogon schaenanthus, A. citratus, A. nardus) with long leaves yielding an essential odoriferous oil used in perfumery."

In Webster's Dictionary [8] the following description appears: **Lemon-grass,** *n.* A fragrant East Indian grass, *Andropogon schœnanthus* and other allied species which yield a fragrant oil, used in perfumery.

CLINICAL HISTORY OF CASES

During the middle of November 1943, I observed 8 men of Scandinavian stock, of a group of about 30, in whom patches of dermatitis appeared on different parts of the cutaneous surface. These men had worked for about three weeks as machinists, carpenters and riggers on a boat which recently arrived from India. Part of the cargo were tanks of lemon grass oil, some of which spilled and evidently found its way to different parts of the boat. Lesions appeared six to eighteen days after the men began working on the boat.

Three men had had mild attacks of dermatitis two months previously. The rash appeared while they were working on a boat which had arrived from India; the nature of her cargo was not known. One patient had had poison ivy dermatitis three or four years before.

The eruption consisted of discrete and confluent erythematosquamous patches of various sizes, some of which were slightly vesicular. The appearance was similar to that of typical dermatitis venenata from Rhus toxicodendron. Most of the affected men had lesions on the face, on the flexor aspects of the lower thirds of the forearms and about the ankles. In 3 patients there was moderate edema of the eyelids, and in 1 there was also considerable dermatitis of the penis, scrotum and upper parts of the thighs. Those with edema of the eyelids

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1. White, J. C.: Dermatitis Venenata: A Supplemental List, J. Cutan. Dis. **21**:441, 1903.

2. Weber, L. F.: A List of Cutaneous Irritants, Arch. Dermat. & Syph. **21**:760 (May) 1930.

3. Pardo-Castello, V.: Dermatitis Venenata: A Study of the Tropical Plants Producing Dermatitis, Arch. Dermat. & Syph. **7**:81 (Jan.) 1923.

4. White, R. P.: The Dermatergoses or Occupational Affections of the Skin, New York, Paul B. Hoeber, 1919.

5. Peck, S. M., Senior Surgeon, Acting Chief, Dermatoses Investigations Section, U. S. P. H. S.: Personal communication to the author.

6. Wood, H. C., Jr.; Osol, A.; Youngken, H. W., and Gershenfeld, L.: The Dispensatory of the United States of America, ed. 23, Philadelphia, J. B. Lippincott Company, 1943.

7. Van Nostrand's Scientific Encyclopedia, New York, D. Van Nostrand Company, Inc., 1938, p. 1190.

8. Webster's Universal Unabridged Dictionary, New York, World Syndicate Publishing Company, 1936, vol. 1, p. 951.

also complained of irritation in the eyes. The bulbar and palpebral conjunctivas appeared somewhat injected, but there was no appreciable conjunctivitis. Two men stated that members of their families had a similar rash (the wife of 1 man and the wife and daughter of the other). This evidently followed contact with contaminated work clothes.

Lesions healed within ten to twenty days with use of a soothing antipruritic lotion and a bland ointment. The men with a history of previous dermatitis were more severely affected than the others, and for them the duration of treatment was longest. None of the patients was incapacitated; each continued with his usual work on a different ship.

PATCH TESTS

I was unable to obtain a sample of the oil for use in patch tests. However, the men brought me a piece of pine wood which was soiled with the oil. The soiled portion of the wood was brownish black and had a pleasant aromatic odor, unlike anything I had ever smelled.

Patch tests applied to the backs of 4 patients and read after twenty-four hours elicited the following reactions: soiled pine wood, a strongly positive reaction (vesiculobullous in 2 and erythematovesicular in the other 2); nonsoiled pine wood, a negative reaction; motor oil (50 per cent in olive oil), a negative reaction; diesel fuel oil (50 per cent in olive oil), a negative reaction; kerosene (50 per cent in olive oil), a 1 plus reaction in 2 patients and a negative reaction in the other 2 patients. The last three substances tested were encountered in the patient's regular work. There was no exacerbation of the existing dermatitis in any of the tested patients. The positive reactions at the test sites persisted for seven to ten days.

I intended to perform patch tests with an extract of Rhus toxicodendron and oil of citronella. However, the patients refused to cooperate, and they soon disappeared from view.

COMMENT

Lemon grass oil is a primary irritant and/or a strong sensitizing agent. The relatively large number of workers affected (the total number is presumed to be 30) and the bullous reaction to a patch test with the soiled pine wood indicate possible primary irritation. On the other hand, the six to eighteen day incubation period and the eczematous reaction to a patch test with the soiled pine wood in 2 other patients strongly suggest sensitization. My failure to test the patients with lemon grass oil proper should not invalidate the diagnosis. The clinical course of the eruption (appearance after adequate exposure and rapid disappearance after cessation of exposure during continuance of usual work) and the strongly positive reaction to a patch test with the soiled wood constitute sufficient evidence to incriminate the lemon grass oil as the offending agent.

Since lemon grass oil has many uses, it should be looked on as an important cutaneous irritant and should be thought of when considering etiologic agents of contact dermatitis.

SUMMARY

Eight men were treated for an acute dermatitis presumably due to lemon grass oil (Cymbopogon citratus or Andropogon citratus).

The eruption resembled poison ivy dermatitis and appeared six to eighteen days after the men had worked on a boat which had arrived from India with a cargo of lemon grass oil.

A piece of pine wood soiled with lemon grass oil elicited a strongly positive reaction in 4 patients tested.

Lemon grass oil evidently has many uses, including its use in the manufacture of perfume, as an adulterant for lemon oil, in the manufacture of ionone and possibly others.

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FURUNCULAR MYIASIS

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The name furuncular myiasis was given by Brumpt [1] to a form of myiasis in which the cutaneous tumor is the first and last morbid manifestation caused by parasitic larvae. In Europe this myiasis is caused generally by Hypoderma diana and rarely by Hypoderma bovis. In the United States the causal agent is, according to the Suttons,[2] Hypoderma bovis and rarely the larva of Dermatobia. In South America, however, furuncular myiasis is due to Dermatobia cyaniventris. The adult of Dermatobia cyaniventris (Dermatobia noxialis or hominis) is a gray or bluish, almost glabrous fly, with a yellow face, shining abdomen and pale brown

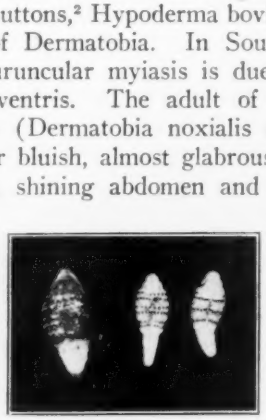

Fig. 1.—Larvae of Dermatobia cyaniventris, which cause furuncular myiasis.

wings; it is from 14 to 17 mm. long. The larvae of Dermatobia cyaniventris are popularly known in Brazil as *Berne, torcel* or *Oura*. The larva is white and in its first phase is flask shaped, with a voluminous cephalic extremity and a caudal extremity which assumes the shape of the neck of a bottle. In its second phase the larva undergoes a metamorphosis in the skin of its host; it increases in volume and becomes an elongated oval which is flattened from before backward. Its body consists of a series of rings, the front edge of the anterior rings being provided with a series of spines. The complete cycle of evolution lasts two to three months (fig. 1).

The following case is a typical instance of furuncular myiasis, which is common in Brazil among the rural population. It is generally believed that the larva enters the human body through the hair follicles. I believe that any part of the skin can be contaminated by the bite of the insect, as occurred in 1 of Blanchard's [3] cases.

1. Brumpt, E.: Précis de parasitologie, ed. 5, Paris, Masson & Cie, 1936, pt. 2, p. 1424.

2. Sutton, R. L., and Sutton, R. L., Jr.: Diseases of the Skin, ed. 10, St. Louis, C. V. Mosby Company, 1939, p. 1372.

REPORT OF A CASE

J. F. S., an 18 year old unmarried Brazilian rural laborer, born at Itabira do Mato Dentro and residing at Sabará (State of Minas Geraes), reported for treatment of furuncular myiasis. His family and personal history are of no interest. He stated that the eruption had appeared five months previously. He could not say whether he had been bitten by an insect.

Fig. 2.—Lesions of furuncular myiasis in different stages of evolution, due to larvae of Dermatobia cyaniventris.

General physical examination showed nothing abnormal. On dermatologic examination there were seen more than forty acuminate or furunculoid tumors at different stages of development on the back, in the gluteal region and on the upper and posterior aspects of the thighs. The lesions were monomorphous. On following their evolution, it was seen that at first the affected skin became tense, violet colored and painful. In the course of time the lesions increased in volume and became furunculoid with a peripheral erythematous halo and purulent secretion. At the highest part of the lesion the tail end of the parasite could be seen (fig. 2). The patient complained of pain which was more severe at night.

Rua Ceará, 1695.

3. Blanchard, R., cited by Louste, A., and Levy-Franckel, A.: Dermatoses parasitaires d'origine animale, in Darier, J., and others: Nouvelle pratique dermatologique, Paris, Masson & Cie, 1936, pt. 2, p. 63.

TRIPLE SYMPTOM COMPLEX OF BEHCET

REPORT OF A CASE

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HAIFA, PALESTINE

In 1940 Behcet [1] published the first description of a complex of symptoms consisting of aphthous ulcers in the mouth, chancroid-like ulcers of the genitals and changes in the eyes, alternating as retinitis, iridocyclitis, iritis, choroiditis and partial or complete atrophy of the optic nerve. All the symptoms are chronic and relapsing. In some cases eruptions similar to erythema nodosum have been reported. Jensen [2] observed positive reactions to intradermal tests with tuberculin, Frei antigen, and dmelcos vaccine (a stabilized suspension of Ducrey bacilli) and even to injections of isotonic solution of sodium chloride, which signifies a nonspecific hyperactivity of the skin. The cause of the disease is not known; it does not respond to treatment, and it is not fatal. Not more than 10 cases have thus far been reported.

REPORT OF CASE

The patient, a 40 year old man born in Palestine, consulted me for the first time in March 1942. He stated that for the past three years he had suffered from ulcers in the mouth and on the genitals, the lesions beginning as blisters and healing in about three weeks, leaving superficial scars at times and relapsing on other parts of the same regions. At the outset there were remissions of one to two months, but at the time of examination the interval was only ten days. The disease began in the mouth and was preceded by arthritic pains. He also had a feeling of depression before each new outbreak. During a visit in Lebanon he felt better; he attributed the improvement to the eating of meat, whereas his diet at home was mainly vegetarian. After sexual intercourse the lesions became worse.

As the cause of the disease is unknown, Jensen considered it important to note even seemingly unimportant data. The patient had suffered from chronic dysentery and showed an increase of uric acid in the blood.

Examination showed aphthous-like ulcers of the tongue and mucous membranes of the lips. On the scrotum were slightly indurated ulcers, with a fibrinous necrotic base and a slightly elevated border. At the last visit there were seven such lesions, the largest having a diameter of 1.5 cm. The clinical appearance suggested chancroid. Twice during the period of my observation of the patient, an erythema-nodosum-like eruption occurred, the first time on the right leg and the second time on the back of the right hand and on the middle finger. He also showed severe changes in both eyes, consisting of symblepharon of the upper and lower lids, xerosis conjunctivae, tarsectomia peracta, pterygium and maculae corneae. These changes were considered by the oculists to be due to trachoma or to an operation for that disease.

The usual serologic examinations as well as bacteriologic examinations of the scrotal ulcers revealed nothing significant. An intradermal injection of 0.1 cc. of isotonic solution of sodium chloride (according to the method of Jensen) produced at the end of forty-eight hours a clearly infiltrated zone which was red and was surrounded by a wide red areola. As Knapp and Schultheiss-Linder [3] have lately advised use of nicotinic acid for the cutaneous lesions, I tried it but I saw no change at the end of three weeks. I had no further opportunity to observe the patient.

COMMENT

It may be asked how the lesions in the eyes (considered by the oculist to be due to trachoma) fit in with my diagnosis. It may be that the changes due to trachoma veiled other changes which I should have expected to see. Another possibility is that trachoma changed the "soil" and thus prevented the growth of an unknown but assumed virus. My case is otherwise so typical clinically that there is no doubt that it belongs in the group of cases first described by Behcet. The question arises whether all three groups of changes (in the mouth, in the genitals and in the eyes) need to be present simultaneously. Usually, the three groups of symptoms do not begin at the same time. Jensen reported a case in which the disease began in the mouth, the oral lesions being followed in three years by

1. Behcet, H.: Some Observations on Clinical Picture of the So-Called Triple Symptom Complex, Dermatologica **81**:73-83, 1940.

2. Jensen, T.: Aphthous Ulcerations of Oral Mucosa and of Skin of Genitals Combined with Ocular Symptoms (Syndrome of Behcet), Acta dermat.-venereol. **22**:64-79, 1941.

3. Knapp, P.: Beitrag zur Symptomatologie und Therapie der rezidivierenden Hypopyoniritis und der begleitenden aphthösen Schleimhauterkrankungen, Schweiz. med. Wchnschr. **71**:1288-1290, 1941. Schultheiss-Linder, H.: Beitrag zur Symptomatologie und Therapie der die rezidivierende Hypopyoniritis begleitenden Genitalulzera und über die Beziehung derselben zum Ulcus vulvae acutum Lipschütz und zu den Vitaminen des B-Komplexes, ibid. **71**:1290-1293, 1941.

ocular symptoms and in six years by lesions of the genitals. As the symptoms are obviously due to a general disease of unknown cause, it is surely possible that the entire complex of symptoms does not develop in all cases.

As the lesions of ulcus vulvae actum are morphologically, clinically and histologically similar to the ulcers of Behcet's syndrome, they are considered by Schultheiss-Linder to be identical. Lesions of the former disease have been reported not only in women but in men (on the scrotum, root of the penis and buttocks). In association with these genital lesions, cases have been reported in which there were aphthae of the buccal mucosa and tongue. Franceschetti and Valerio[4] have reported cases with hypopyon iritis. I wish to stress the fact that not always are all of the symptoms present at the same time.

There is a question as to whether ulcus neurototicum oris et vulvae (Löblewitz), periadenitis mucosa necrotica recurrens (Sutton) and aphthosis (Neumann) do not all belong to the same symptom complex. All have the same clinical appearance; their cause is unknown, and they are not influenced by treatment. Further studies may reveal a common cause for all these diseases and thus simplify medical terminology.

4. Franceschetti, A., and Valerio, M.: L'uveite recidivante (ad ipopion), manifestazione parziale di una sindrome muco-cutaneo-oculare, Rassegna ital. d'ottal. **9**:1-40, 1940.

DERMATITIS DUE TO NAIL POLISH

A STUDY OF TWENTY-SIX CASES WITH THE CHIEF ALLERGENIC COMPONENT TOLUENE SULFONAMIDE FORMALDEHYDE RESIN AND RELATED SUBSTANCES

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Nail polish was first introduced in 1919 as a solution of collodion, which left a film on drying.[1] Numerous technical improvements have now made nail polish a complex product, consisting essentially of a film-forming base, such as nitrocellulose, to which are added various types of resins, solvents, plasticizers, coloring materials and, in some cases, perfume. Sporadic cases of dermatitis due to nail polish were recorded as far back as 1925,[2] and it is possible that in the succeeding decade unrecognized examples of this eruption occurred. The situation in regard to the incidence of this dermatitis seems to have changed radically in the past five or six years, and the cases can now be numbered in the hundreds, if not in the thousands. This occurrence in epidemic form makes one suspect that most of these cases are caused by the incorporation of some new ingredient.

There has been much speculation about the cause of this dermatitis. Some investigators have attributed it to the nitrocellulose base; others, to the coloring materials or the solvents or to a combination of factors, including plasticizers and resins. It seems evident that the chief drawback to the elucidation of the cause or causes has been lack of knowledge regarding the technical aspects of this product, and in some cases conclusions seem to have been drawn from the use of primarily irritating mixtures. The first important advance was made by Simon,[3] who recorded 7 examples of nail polish dermatitis in which hypersensitiveness to "sulfonamide formaldehyde" resin was present. At the time this paper was published, one of us (H. K.) had just completed patch tests with a variety of resins in a case of this dermatitis; the only significant positive reaction had been produced by a specimen of melamine formaldehyde resin. After reading Simon's paper, we investigated the matter further and discovered that owing to the conditions of manufacture of our specimen of melamine formaldehyde resin it probably contained some toluene sulfonamide formaldehyde resin. Thus, what at first seemed an interesting group reaction turned out to be a highly specific reaction. This observation led us to study the problem in greater detail.

In this communication we wish to record our observations in 26 cases of nail polish dermatitis in which we were able to make patch tests with toluene sulfonamide resin and a number of related substances and derivatives. Our results are in essential agreement with those recorded by Simon, and, in addition, the data obtained permit amplification along new and interesting lines. There are many practical as well as theoretic implications involved in this subject, and an opportunity has been granted to study in some detail the question of group hypersensitiveness to related chemicals.

This group of 26 cases of nail polish dermatitis represents a relatively small fraction of the cases seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital and in private practice. All instances were undoubtedly caused by nail polish, as shown by the clinical features,[4] the positive reactions to patch tests and the subsequent course. We did not study systematically the effects of the base, plasticizers, coloring matter, solvents and perfume, since others [5] obtained essentially negative results with many substances of these types. Whereas it is probable that in an occasional case nail polish dermatitis may be caused by any of these substances, the data compiled in this study

From the Skin and Cancer Unit, New York Post-Graduate Medical School and Hospital, Columbia University.

1. Van Ostrom, W., and Anderson, R. J.: Nail Polish, Drug & Cosmetic Indust. **39**:52 (July) 1936.

2. Miller, H. E., and Taussig, L. R.: Cosmetics, J. A. M. A. **84**:1999 (June 27) 1925.

3. Simon, F. A.: Nail Polish Eczema, South. M. J. **36**:157 (Feb.) 1943.

4. Osborne, E. D.; Jordon, J. W., and Campbell, P. C.: Dermatitis Venenata Due to Nail Lacquer, Arch. Dermat. & Syph. **44**: 604 (Oct.) 1941.

5. (*a*) Palmer, R. B.: Dermatitis from Nail Lacquer, Arch. Dermat. & Syph. **44**:13 (July) 1941. (*b*) Simon.[3]

indicated that these factors were not especially important in the cases recently encountered, with occasional exceptions.

RESULTS OF PATCH TESTS

1. *Nail Polishes.*—In a previous paper [6] we recorded 2 cases in which positive reactions of varying degrees to patch tests with as many as six different nail polishes commonly used in the city of New York were obtained in the same patient. These included the cheap and the expensive types, colored as well as colorless. Palmer [5a] obtained positive responses to as many as eleven and twelve different nail polishes, including various shades of the same make. The 26 subjects in our study were all found hypersensitive to one or more nail polishes, and often the colorless types produced the most intense reactions. From these and other data to be recorded, it can be concluded that practically all the commonly used nail polishes contain some common factor as they are manufactured today. Only 1 case proved to be an exception. The patient was hypersensitive to a less popular brand but insensitive to another nail polish known to contain the active ingredient as well as to the active ingredient itself, namely, toluene sulfonamide formaldehyde resin. The reactions to the various nail polishes ranged from 1 to 2 plus up to 3 to 4 plus, the majority being 2 to 3 plus responses.

It may be noted that in many instances various types of nail polish remover were tested, all with essentially negative results. There were rare exceptions, but in these instances it was found that the remover had been contaminated with nail polish. Whereas it is possible to acquire a dermatitis from use of the remover, we feel that this is uncommon; certainly, the dermatitis so caused cannot be compared in incidence with that due to the nail polishes proper.

2. *Toluene Sulfonamide Formaldehyde Resin.*—This resin is essentially a condensation product of toluene sulfonamide (ortho and para mixture) and formaldehyde. Other substituted sulfonamides are also used. Powers [7] described this group of resins as forming linear condensation products which have a relatively low degree of polymerization, since they are fairly soft. There are, however, variants with different degrees of polymerization. These resins have excellent effects on the gloss, the adhesion and the waterproof properties of the film.

The concentration of this resin used in patch tests was a 30 per cent solution in acetone. In this strength it is not a primary irritant, as indicated by the completely negative reactions to patch tests in 15 control subjects. Of the 26 subjects with nail polish dermatitis, 25 gave intense positive reactions to this substance, the vast majority showing responses graded as 3 plus or more. When compared with the reactions elicited by the nail polishes, it was observed that the responses to the resin were practically always more pronounced. This indicated, in all probability, that the concentration used for the patch tests was greater than that found in nail polishes as a group. However, no direct comparisons could be attempted, because in the one case the resin was dissolved in a simple diluent, whereas in the other the resin was incorporated into a complex mixture of ingredients. Moreover, the reactions to nail polish were usually well circumscribed, whereas those elicited by the resin dissolved in acetone were nearly always spreading responses, such as are often seen with substances having low surface tension. In 3 cases focal intensifications of mild degree were seen at the previous sites of eruption. When it became clear that practically all subjects with nail polish dermatitis reacted to the toluene sulfonamide formaldehyde resin, we tested a few of them with the resin immediately, and it was found that in all instances a positive reaction to the resin invariably meant hypersensitiveness to the nail polish or polishes subsequently brought in for testing. This served as a check on our observations.

These data do not mean that all cases of nail polish dermatitis are caused by this resin. Against such a broad view are the following points: 1. Cases of nail polish dermatitis were recorded long before this synthetic resin was introduced. 2. There was 1 case in our group of 26 in which this resin and materials known to contain it elicited uniformly negative responses; this was the case previously mentioned as an exception. 3. The composition of nail polishes is complex and variable. Whereas a positive reaction to a patch test with the toluene sulfonamide formaldehyde resin could be correlated with hypersensitiveness to the nail polishes used, a negative reaction did not eliminate the possibility of dermatitis due to some other ingredient in the nail polish.

3. *Melamine Formaldehyde Resin.*—The first subject with nail polish dermatitis in our group was given a patch test with this resin among others. This substance was applied as a 50 per cent solution in amyl butyrate, and it proved to

6. Keil, H.; Russo, J. J., and Van Dyck, L. S.: Dermatitis Due to Nail Polish: Report of Two Cases with Experimental Studies, Arch. Dermat. & Syph. **48**: 612 (Dec.) 1943.

7. Powers, P. O.: Synthetic Resins and Rubbers, New York, John Wiley & Sons, Inc., 1943.

be the only one that elicited a strongly positive reaction; this reaction resembled strikingly the responses to two different nail polishes, although the intensity of the former was greater. On investigation it was learned that this specimen of resin was plasticized with toluene sulfonamide (para and ortho mixture) and that this plasticizer probably reacts with the small amount of free formaldehyde derived from the melamine formaldehyde resin to form a certain amount of the sulfonamide polymer.

Of the 26 subjects with nail polish dermatitis, 11 were tested with this specimen of melamine formaldehyde resin, either as a 50 per cent solution in amyl butyrate (6 subjects) or as a 30 per cent solution in acetone (5 subjects). All but 1 of this group of 11 patients showed positive reactions, the exception previously mentioned. In practically all instances the reactions elicited by the melamine formaldehyde resin were much less intense than those due to the toluene sulfonamide formaldehyde resin, which indicates in all probability that the former contained the active ingredient in a smaller concentration. The factor of uncombined toluene sulfonamide itself must also be considered in evaluating the positive reactions to the melamine resin, as will be shown later.

4. *Condensate of Toluene Sulfonamide and Formaldehyde.*—This substance has been separated from solutions of apparently resinous condensation products.[8] It is thought to be a condensation product of two molecules of toluene sulfonamide with one molecule of formaldehyde, attached through nitrogen atoms by means of a methylene group. Theoretically, such a condensate may be a mixture of these molecules in several combinations involving the ortho and para positions. This compound represents the smallest unit (a dimer) obtainable by condensation and is probably derived from the breakdown of larger, more loosely combined complexes found in the probably heterogeneous toluene sulfonamide formaldehyde resin.[8]

The problem of "skin irritation" due to plastic compositions will not be discussed here, except to note that in general the more complete the "curing" (the greater the degree of polymerization) the less the likelihood that dermatitis will result from the finished product. In the case of toluene sulfonamide formaldehyde resin it appears that the chain polymers are relatively short, and it will be interesting to see the effects of this resin in a state of higher polymerization. In the present section we are concerned with a short unit, the dimer, and we believe that this is the first time that dermatologic studies have been made with the dimer of any synthetic resin.

A solution of 15 per cent condensate in acetone was used in the patch tests for the following reason: If this derivative is the cause of the dermatitis, more intense reactions may be expected from it than from the resin itself, since the concentration selected was probably greater than that found as a breakdown product in the resin. The results showed that this was not the case. Of 11 subjects with nail polish dermatitis tested with the condensate, 8 had positive reactions which were definitely less pronounced than those elicited by the resin itself. These responses varied from 1 to 2 plus to 2 to 3 plus, only 1 subject having a 3 plus reaction. In 2 other instances the reactions were mild erythemas, graded 1 plus. The last subject in this group had a negative response but showed a 1 to 2 plus reaction to the sulfonamide resin and a 2 to 3 plus reaction to a nail enamel. As no further studies could be made, these results seemed to indicate that this patient was probably hypersensitive to more than the sulfonamide resin alone. Considering the concentrations on a comparative basis, the positive responses to the condensate, although present in a large percentage of cases, were much weaker than those elicited by the resin. We feel, therefore, that the positive reactions to the condensate may be attributed to group reactions to similar chemical configurations.

5. *Toluene Sulfonamide (Ortho and Para Mixture).*—This is one of the two basic substances from which the sulfonamide resin is formed. This compound and its various amides and derivatives are members of a group of gelatinizing plasticizers sold in England under the trade name of abracol and in the United States as santocizers, the different members being designated by numbers.[9] The relatively poor lightfastness of these compounds does not prevent their use in nail polishes and some other types of lacquers. As plasticizers, they function to increase permanent flexibility within certain limits of temperature. The specimen used in our study was probably a mixture of para and ortho isomers.

Toluene sulfonamide was applied in patch tests as a 3 per cent solution in acetone. This concentration was ten times less than that used in the case of the resin. Nevertheless, we judged

8. Kirkpatrick, A.: Aryl Sulphonamide Formaldehyde Resins, in Mattiello, J. J.: Protective and Decorative Coatings, New York, John Wiley & Sons, Inc., 1941, vol. 1, p. 492.

9. Jordan, O.: The Technology of Solvents, translated by A. D. Whitehead, London, Leonard Hill, Ltd., 1938.

this to be a greater concentration than exists in the resin as a breakdown product, particularly when the resin is incorporated into the nail polish. Of the group of 26 subjects with nail polish dermatitis, 16 were tested with this substance. Of these, 7 had entirely negative results; 2 had an indefinite varying erythema, and 7, positive responses varying from 1 to 2 plus to 3 plus. In the latter group of intensely positive reactions, 4 showed 3 to 4 plus responses. Whereas no direct comparisons can be made between these results and those elicited by the sulfonamide resin itself, because it is not known how much free toluene sulfonamide is present in the latter, the relatively high incidence of group reactions to a chemically similar fraction may be noted. The concentration of toluene sulfonamide was suitable for patch tests, although it was probably higher than that likely to be found in the resin.

6. *Sulfanilamide.*—The chemical similarity between the preceding compound and sulfanilamide led us to make comparative studies toward the end of the investigation. For comparative purposes, therefore, we used sulfanilamide in a solution of 3 per cent in acetone. Our data are too meager to permit drawing of general conclusions. However, of 4 subjects tested simultaneously with toluene sulfonamide and sulfanilamide, 3 did not react to the latter; of these, 1 did not react to toluene sulfonamide and the 2 others showed plus-minus erythemas. The fourth subject revealed a significant 2 plus papular reaction to sulfanilamide and a 3 plus response to toluene sulfonamide. It is interesting that the latter patient had never received sulfanilamide or any of its related drugs as medication, either internally or externally. There is a strong possibility that this subject had been rendered specifically group positive to sulfanilamide. This patient had the following reactions to patch tests: toluene sulfonamide formaldehyde resin, 3 plus; condensate, 2 to 3 plus; toluene sulfonamide, 3 plus; formaldehyde, 3 plus, and sulfanilamide, 2 plus. The weaker reaction to sulfanilamide speaks for a group reaction.

7. *Toluene.*—Sensitivity to toluene was tested in 16 subjects with a concentration of 50 per cent in liquid petrolatum. All responses were negative, except those of 1 patient who had a mild degree of primary irritation and 1 who had a definite papular response (1 to 2 plus). The latter patient was intensely hypersensitive to most of the breakdown products as well as to a straw hat lacquer with which she had been in contact.

8. *Formaldehyde.*—Patch tests were made in 21 cases with a 5 per cent concentration of solution of formaldehyde U. S. P. (equivalent to 2 per cent formaldehyde). The results were: 11, negative; 1, a mild primary irritation, and 9, definite positive reactions, of which 1 was a delayed positive reaction on the fourth day (1 to 2 plus). In nearly all instances the positive reactions were far milder than those produced by the sulfonamide resin. There were, however, 2 exceptions, in which the responses were intense; 1 subject had a 4 plus reaction and the other a 3 plus reaction. It is possible that some of the positive reactions may have been due to coincident prior hypersensitiveness to formaldehyde, but we have no proof of this. The relatively high incidence of positive reactions to this substance may be noted because in this respect our results differ from those recorded by Simon,[3] who observed only 1 positive reaction in 7 cases. Palmer,[5a] testing 2 patients with nail polish dermatitis with formaldehyde, obtained positive reactions to this substance in both, and 1 of these also had a positive response to methenamine, a derivative of formaldehyde. It is also possible that the conditions which operate to render a patient hypersensitive to the sulfonamide formaldehyde resin may also be favorable to inducing hypersensitiveness to formaldehyde, although we must stress that the reactions to the latter substance were generally mild.

9. *Formic Acid.*—The view seems to be prevalent in industry that hypersensitiveness to formaldehyde is actually due to formic acid, which is the oxidation product of formaldehyde. For this reason we studied the effect of a 1 per cent solution of formic acid in water in 13 cases of nail polish dermatitis. All reactions were negative, except for that of 1 subject who showed mild primary irritation; contrariwise, 5 subjects in this group were definitely hypersensitive to formaldehyde itself. These data are therefore at variance with the view that hypersensitiveness to formaldehyde is based on the formation of formic acid.

10. *Straw Hat Lacquer.*—One of the subjects in our group of 26 was hypersensitive not only to nail polish but to a lacquer used on sisal straw hats in her work. The manufacturer of this lacquer informed us that it contained a "gum" in about 15 per cent concentration but that in the final preparation of the product with a thinner the concentration of the "gum" was about 6 per cent. The descriptive name of this "gum" indicated its probable relation to the sulfonamide formaldehyde resin.

The straw hat lacquer as used in our study was diluted with an equal amount of liquid petrolatum. The active ingredient therefore

had a final concentration of about 3 per cent in the patch test. This figure should, however, be regarded as only approximate, for we had no means of determining its accuracy. That this lacquer contained the same resin responsible for the dermatitis due to nail polish was shown further by the results in 12 patients with this dermatitis. All had intensely positive reactions, except 1 in whom the reaction was delayed (patch probably not snugly adherent to the skin).

In contrast to these results, a patient hypersensitive to a hair lacquer responded negatively to the sulfonamide formaldehyde resin, the straw hat lacquer and other substances known to contain the sulfonamide formaldehyde resin. This showed definitely that the sulfonamide formaldehyde resin was not present in the hair lacquer.[10] A recent report by Schwartz [11] stated that the manufacturers of hair lacquer used rosins modified with maleic acid.

11. *Other Resins.*—In 13 cases we tested three types of resins which may be used in nail polish. Two of these were applied undiluted as amorphous powders (a modified alkyl resin and a polymerized wood rosin) and one as a 30 per cent solution in a mixture of toluene and acetone (a dibasic terpene resin). Simon [3] obtained uniformly negative reactions to various types of natural resins and modified natural resins in his 7 cases. All 13 of our patients had negative responses to the dibasic terpene resin, and 3 had mildly positive reactions to one or both of the other two resins. These results appeared to indicate that hypersensitiveness to the latter two resins was probably unimportant, and in only 1 case at the most could this factor be considered subsidiary.

COMMENT

The recorded data support Simon's view that toluene sulfonamide formaldehyde resin is the chief cause of nail polish dermatitis as seen today. The occurrence of so many cases is moreover consistent with the relatively recent introduction of this synthetic resin. Observers have recorded instances in which many nail polishes, colorless as well as colored, elicited positive reactions in the same patient. Our data appear to show that this can be attributed, in large measure, to the common factor of the toluene sulfonamide formaldehyde resin. This would explain further why patients once sensitized are generally unable to tolerate nail polishes of various makes. However, the evidence indicates that this resin is not the sole cause of nail polish dermatitis.

The data recorded by Palmer, Simon and others show that the nitrocellulose base, pigments and dyes, various natural and modified natural resins, solvents and plasticizers cannot be implicated, certainly not in the vast majority of cases. There are probably occasional instances due to any of these factors, but so far as the present cases of nail polish dermatitis are concerned these substances may be considered as relatively much less important. That Silver and Chiego [12] were unable to sensitize guinea pigs with a nail polish composition of their own make has no direct bearing on our observations, since their lacquer apparently did not contain the synthetic resin with which we are concerned.

There is considerable evidence that persons sensitized to nail polish may also be sensitive to other substances, such as mercurials and lipstick,[5a] a red dress,[13] the philodendron plant [14] and hair lacquer.[15] In such instances it has been reasonable to suspect a common factor, but there are pitfalls in such conclusions. Thus, in some cases, as in that of the person simultaneously sensitive to mercurials, this is due in all probability to multiple independent sensitizations. In other cases, such as that of the patient sensitive to hair lacquer, it is reasonable to suspect some type of resin, and this may or may not be chemically related to the principal cause of nail polish dermatitis. An occasional observer [16] has invoked the concept of "synergism," but this view cannot be substantiated in the case of dermatitis due to nail polish.

We wish to stress again the high incidence of positive reactions to patch tests with various derivatives and substances related to the toluene sulfonamide formaldehyde resin and to note that these are in the nature of group reactions of generally weaker intensity. The possible relation to induced hypersensitiveness to sulfanilamide has been indicated, although general conclusions cannot as yet be drawn in view of the

10. Keil, H.: Dermatitis Due to Hair Lacquer and Nail Polish (Lacquer), J. A. M. A. **123**:857 (Nov. 27) 1943.

11. Schwartz, L.: An Outbreak of Dermatitis from Hair Lacquers, Pub. Health Rep. **58**:1623 (Oct. 29) 1943.

12. Silver, H., and Chiego, B.: Nails and Nail Changes: I. Investigation of Nail Lacquers and Their Components, J. Invest. Dermat. **2**:361 (Dec.) 1939.

13. Sulzberger, M. B.: Hypersensitivity Due to Nail Polish, Arch. Dermat. & Syph. **36**: 460 (Aug.) 1937.

14. Keil, H., and Van Dyck, L. S.: Personal observations.

15. Howell, J. B.: Contact Dermatitis from Hair Lacquers, J. A. M. A. **123**:408 (Oct. 16) 1943. Keil and Van Dyck.[14]

16. Ellis, F. A., and Kirby-Smith, H.: Contact Dermatitis Due to Nail Polish, J. A. M. A. **116**: 45 (Jan. 4) 1941.

paucity of observations on this point. Finally, it is worth while to note the relationship between nonindustrial and industrial exposure and between rare chemicals and the more common ones encountered as contacts either in ordinary exposure or in the form of medicaments applied to the skin.

CONCLUSIONS

The cause of nail polish dermatitis in the vast majority of cases observed today is a toluene sulfonamide formaldehyde resin. In tests of 25 of 26 subjects with this eruption, this substance, which is not a primary irritant in the concentration used, elicited intensely positive reactions.

Hypersensitiveness to this resin is frequently accompanied by group reactions to related chemical fractions and derivatives, such as the condensate of toluene sulfonamide and formaldehyde, toluene sulfonamide and, to a lesser extent, formaldehyde.

This principle of group reactions seems also to extend to sulfanilamide, but the data are too few to warrant general conclusions. In 1 of 4 subjects with nail polish dermatitis a definite positive reaction was elicited by sulfanilamide; the patient had never used this or related compounds, either internally or externally.

By means of patch tests the toluene sulfonamide formaldehyde resin was established as present in one of the straw hat lacquers found on the market. On the other hand, this resin appears not to be present in the hair lacquers which have lately caused instances of contact dermatitis.

A person hypersensitive to toluene sulfonamide formaldehyde resin is usually unable to tolerate the majority of nail polishes commonly used in the city of New York but not necessarily all. Contrariwise, a negative reaction to a patch test with this resin does not eliminate nail polish dermatitis due to another cause, and in such instances the patient may tolerate a nail polish containing this resin unless there is sensitization to another ingredient.

Simultaneous hypersensitiveness to a nail polish and another substance or cosmetic may be due to many different factors, such as (1) multiple, independent sensitization, (2) group reactions to similar chemical compounds and (3) an identical compound found in both materials. The patch test is a method by which these different factors can frequently be relegated to their proper place.

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Clinical Notes

FIXED ERUPTION FROM SULFADIAZINE OR SULFAMERAZINE

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Various eruptions, usually macular erythemas, are not uncommon as complications of therapy with various sulfonamide compounds and are not unknown complications following administration of sulfadiazine. Fixed eruptions or eruptions recurring at exactly the same site after each administration of the offending drug, are also not uncommon as complications following use of several drugs—especially phenolphthalein.

The combination of these phenomena, however, is rare. As far as I know this is the first observed instance in which sulfadiazine has caused a "fixed eruption."

There is 1 report of a case of fixed eruption, conjunctivitis and fever from sulfathiazole,[1] which is the only known previous reference to a fixed eruption from any sulfonamide compound, and the present typical case resulting from the use of sulfadiazine is the second mention of fixed eruption from any sulfonamide drug.

REPORT OF A CASE

O. C., a physician aged 35, has a seborrheic type of skin and rosacea. He suffers from rheumatoid arthritis. On Jan. 15, 1944 he came to the office because of a slightly raised bright purplish red eruption about the size of a quarter on the dorsum of the right thumb. There was a history of a similar eruption about three months previously at the same site. (In retrospect only, the history was obtained that this eruption had followed the second dose of 1 Gm. of sulfadiazine.)

The appearance was that of a fixed eruption, and questioning revealed no possible causative agent except the sulfadiazine, which had been taken for the arthritis. The fixed drug eruption was obvious, but the explanation of its cause was not so apparent. (The previously mentioned history in retrospect was not at first available.)

By elimination, sulfadiazine was assumed to be the probable causative agent, although I had not known of such an eruption's being similarly caused. Use of the drug was discontinued, and the eruption subsided.

Six weeks later the patient returned with apparently the same sort of eruption in exactly the same location as previously. He stated that he had taken 2 Gm. of sulfadiazine on Feb. 2, 1944. Six hours after the first dose (1 Gm.) and just after the second dose, the same eruption recurred and in the same spot where it had appeared on two previous occasions. There were no other evidences of toxic reactions except a slight secondary anemia.

Patch tests with the same brand of sulfadiazine in water and as a powder and also with a commonly used sulfathiazole cream were applied and were observed after forty-eight and seventy-two hours. All three of these gave entirely negative results.

Other laboratory data were essentially normal, except for 3,870,000 red blood cells per cubic millimeter on March 1, 1944. The urine was consistently normal. Unfortunately, sulfadiazine levels of the blood were not determined. The drug was not frequently administered, however, and the dose was not large.

The patient took no sulfadiazine between February 28 and April 26, and on the latter date there was perceived a well demarcated macular circular light reddish-brown spot in the identical area and of the same size (approximately 2 cm. in diameter) as the original.

ADDENDUM.—After this note was submtited for publication the patient has observed recurrences following the ingestion of sulfamerazine.

This compound is closely related to sulfadiazine, chemically, and it is interesting that either of these different, but chemically similar, sulfonamide compounds will cause the same "fixed eruption."

CONCLUSION

This case is recorded because it is the first instance of a fixed eruption from sulfadiazine of which I am aware.

1. Director, W.: Fixed Eruption, Conjunctivitis, and Fever from Sulfathiazole, Arch. Dermat. & Syph. **48:** 523-524 (Nov.) 1943.

Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

PERCUTANEOUS ADMINISTRATION OF VITAMIN K. H. VOLLMER, CHARLES ABLER and H. S. ALTMAN, Am. J. Dis. Child. **64**:462 (Sept.) 1942.

Through a series of clinical experiments the authors were able to prove that vitamin K is absorbed by the skin. This absorption requires a suitable solvent, and in such a solvent the speed of absorption is rapid. The procedure of application is safe, simple and effective and should be carried out as a routine for each newborn infant as a prophylactic measure against hemorrhagic disease of the newborn. All dermatologists interested in the absorptive powers of the skin should consult the original article.

DENTAL DEVELOPMENT IN CONGENITAL SYPHILIS. BERNARD G. SARNAT and NOEL G. SHAW, Am. J. Dis. Child. **64**:771 (Nov.) 1942.

This is an excellent study of dental changes in congenital syphilis. In 30 per cent of a group of 73 patients characteristic dental changes were found. The teeth which are affected and may be of diagnostic value are the permanent upper central incisors, the lower central and lateral incisors and the first molars.

By tracing dental development, the authors present an explanation of the Hutchinson incisor and the mulberry molar. The differential diagnosis of somewhat similar conditions involving the teeth is given. Roentgenograms are of great value in the study of such teeth. Actually a greater number of dental stigmas are observed roentgenologically than clinically.

NEUROFIBROMATOSIS OF THE COLON, SMALL INTESTINE AND MESENTERY IN A CHILD. THOMAS CHALKLEY and JAMES W. BRUCE, Am. J. Dis. Child. **64**:888 (Nov.) 1942.

This is a report of neurofibromatosis involving the small intestine, colon and mesentery. No cutaneous tumors were present. The literature on intra-abdominal von Recklinghausen's disease is reviewed.

HERPES ZOSTER IN THE NEWBORN. PAUL FREUD, GEORGE D. ROOK and SIDNEY GURIAN, Am. J. Dis. Child. **64**:895 (Nov.) 1942.

Freud, Rook and Gurian report a case of herpes zoster in a 3 day old girl. A thorough review of the literature revealed only 5 cases of herpes zoster in newborn infants. In several of the reported cases an intrauterine transmission was probable.

ECTODERMAL DYSPLASIA (ANHIDROTIC TYPE) WITH COMPLETE ANODONTIA. A. G. BRODIE and B. G. SARNAT, Am. J. Dis. Child. **64**:1046 (Dec.) 1942.

Brodie and Sarnat report a case of hereditary ectodermal dysplasia of the anhidrotic type. Special emphasis is placed on the patient's complete lack of teeth. It is of considerable interest and significance that such complete absence of teeth does not significantly impair the development of the face and jaws.

NELSON PAUL ANDERSON, Los Angeles.

GRANULOMA INGUINALE OF THE EYELID. A. L. WEINER, I. E. GAYNON and M. S. OSHERWITZ, Am. J. Ophth. **26**:13 (Jan.) 1943.

Weiner, Gaynon and Osherwitz give the following summary and conclusions:

"1. A patient with an extragenital lesion of granuloma inguinale affecting the eyelid is described in detail.

"2. The diagnosis was established by the demonstration of Donovan bodies in the tissue of the eyelid, by the presence of clinical granuloma inguinale of the genitals, and by the response of specific therapy.

"3. The diagnostic hazards created by the presence of positive serologic tests for syphilis are reëmphasized."

W. S. REESE. [ARCH. OPHTH.]

SULFATHIAZOLE AS A VENEREAL DISEASE PROPHYLAXIS. R. D. ARTHUR and H. DERMON, Am. J. Syph., Gonor. & Ven. Dis. **27**:261 (May) 1943.

Sulfathiazole prophylaxis against venereal infection was instituted the morning after sexual exposure. Three Gm. was given immediately after breakfast, 2 Gm. after dinner and 1 Gm. after supper.

After 199 exposures (in 152 men) 1 man acquired a chancroid and 5 acquired syphilis after sulfathiazole prophylaxis. One of the men had a secondary syphilid but the other 4 showed nothing but positive serologic reactions for syphilis. Of 259 men with 384 exposures not receiving sulfathiazole, 42 acquired infections, of whom 9 had primary syphilis.

Sulfathiazole when used as a prophylaxis against venereal disease may interfere with the macroscopic chancre of syphilis.

REUTER, Milwaukee.

SPIROCHAETAL SURVIVAL IN FROZEN PLASMA. MARK M. RAVITCH and JOHN W. CHAMBERS, Bull. Johns Hopkins Hosp. **71**:299 (Nov.) 1942.

The study of the survival of Treponema pallidum in blood banks and in liquid, frozen and dried plasma is important. Its importance lies in the prevention of loss of possible donors and of blood already drawn and found to have a positive serologic reaction for syphilis. This is particularly cogent during the present war.

Already work has been done to demonstrate that syphilitic blood can be used to make desiccated plasma. In a series of well controlled inoculation experiments the authors were able to demonstrate that plasma which has been frozen at —20 C. for forty-eight hours or longer is not infectious.

THE SERUM PROTEINS IN SARCOID: ELECTROPHORETIC STUDIES. A. MURRAY FISHER and BERNARD D. DAVIS, Bull. Johns Hospkins Hosp. **71**:364 (Dec.) 1942.

In an electrophoretic study of serum proteins in 12 cases of sarcoid, the authors found that hyperproteinemia is present. This is due to an increase in the globulin fraction. By electrophoretic analysis the various albumin and globulin fractions were determined. Since persons with healed sarcoid present almost normal values for serum proteins, it is possible

that similar electrophoretic studies during the course of the active disease may prove to be of prognostic value.

ADDITIONAL EVIDENCE OF THE ROLE OF HYPERSENSITIVITY IN THE ETIOLOGY OF PERIARTERITIS NODOSA: ANOTHER CASE ASSOCIATED WITH A SULFONAMIDE REACTION. ARNOLD R. RICH, Bull. Johns Hopkins Hosp. **71**:375 (Dec.) 1942.

This is a report of the eighth case of periarteritis nodosa which Rich has observed in patients dying after therapy with foreign serum, with foreign serum and sulfonamide compounds or with sulfonamide compounds alone. The reaction to sulfathiazole in the present case appeared on the ninth day following the initial dose. Conjunctivitis was present also.

These observations indicate that the continued administration of a sulfonamide compound or of foreign serum after symptoms of hypersensitivity have appeared causes the danger of producing vascular damage of the periarteritis nodosa type.

NELSON PAUL ANDERSON, Los Angeles.

SYPHILIS OF THE CENTRAL NERVOUS SYSTEM. CLEMSON MARSH. Bull. Los Angeles Neurol. Soc. **7**:182 (Dec.) 1942.

Marsh reports a study of 145 cases of neurosyphilis in which the disease was verified at autopsy; a disagreement between the clinical and the pathologic diagnosis was often noted. The most common errors in diagnosis were due to (1) incomplete study of the patient because of sudden death; (2) failure to recognize the minimal signs of chronic meningeal syphilis; (3) inaccurate classification of well defined cases of neurosyphilis, and (4) tendency to make a general diagnosis of neurosyphilis without differentiation of the form.

The author states that the various types of neurosyphilis are still proved pathologically to be fairly clear-cut entities and that in most cases the patient should present fairly definite clinical symptoms. A diagnosis of a combined type of neurosyphilis, such as dementia paralytica, tabetic form, generally is wrong, the symptoms being due usually to multiple vascular lesions or to a syphilitic entity plus some other disease.

LESKO, Bridgeport, Conn.
[ARCH. NEUROL. & PSYCHIAT.]

THE SOURCE OF INFECTION IN ACTINOMYCOSIS. JOHN SLACK, J. Bact. **43**:193 (Feb.) 1942.

Two theories have been brought forth regarding the source of infection in actinomycosis: the exogenous theory, which indicates that contaminated awns of grass or grain carry the organism to man and cattle, and the endogenous theory, which implies that man can be a carrier of the organism. The author has made a thorough investigation of the latter theory. One hundred pairs of tonsils from routine tonsillectomies were examined, and in addition 100 samples of pyorrhea pus were cultured. From the 100 pairs of tonsils colonies of anaerobic actinomycetes were found in 14 per cent of the primary mixed cultures and pure cultures of these organisms were isolated from 11 per cent of the tonsils. Monilia albicans was isolated from 12 per cent of the tonsils. From 100 samples of pyorrhea pus colonies of anaerobic actinomycetes were found in 18 per cent of the primary mixed cultures and pure cultures of the organisms were isolated from 12 per cent; M. albicans was isolated from only 1 specimen. Progressive, fatal experimental actinomycosis with sulfur granules was produced in 4 rabbits and 1 guinea pig inoculated with anaerobic actinomycetes isolated from pyorrhea pus.

STOESSER, Minneapolis. [AM. J. DIS. CHILD.]

THE EFFECT OF SULFANILAMIDE ON EXPERIMENTAL LEPROSY. CECIL KRAKOWER, PABLO MORALES-OTERO and JOSEPH H. AXTYMAYER, J. Infect. Dis. **72**:1 (Jan.-Feb.) 1943.

There have been few observations dealing with the effects of the sulfonamide compounds on leprosy, and they have been inconclusive.

The authors inoculated a virulent strain of lepra bacillus into 63 albino rats. They found that 1 per cent sulfanilamide fed to rats and mice infected with the mouse strain of lepra bacillus throughout the whole of the experimental period completely inhibited the growth and development of the leproma at the site of inoculation and prevented the occurrence of distant metastases. One per cent sulfanilamide and, in a single trial, 1 per cent sulfathiazole were found to arrest the further development of the leproma and its metastases when given after an untreated period of the infection. One per cent sulfanilamide given during the first part of the infection and then withdrawn permitted the inhibited lepromatous lesion to evolve again, but at a slower rate than would be expected. The authors did not find any indication, however, that with inhibition of the lesion produced by the chemotherapeutic agent considerable numbers of lepra bacilli are killed. In view of this and in the absence of any clear evidence that the bacilli, alive or dead, can be digested by the cells of the host, the permanency and unaltered character of the inhibited lesion are understandable, as is its unfailing progression following removal of the inhibiting agent.

RELATIONSHIP OF THE EOSINOPHIL RESPONSE TO FACTORS INVOLVED IN ANAPHYLAXIS. DAN H. CAMPBELL, J. Infect. Dis. **72**:42 (Jan.-Feb.) 1943.

Eosinophilia represents a cellular response which invariably accompanies local anaphylaxis and may or may not be evident in the general circulation depending on the severity of the hypersensitive reaction. However, under experimental conditions it has been found that practically any degree of general eosinophilia can be obtained by suitable selection of antigens and proper spacing of injections. In the present investigation guinea pigs were used for several observations. The author found that histamine, acetylcholine and cystein per se are not eosinophilotactic but will enhance the eosinophil response in sensitized animals or in normal animals given a single injection of ascaris keratin. Substances which diminish or prevent anaphylaxis also diminish or prevent eosinophilia, there being a reduction of eosinophilia following the injection of epinephrine hydrochloride and an inhibition following the introduction of simple haptenic groups such as arsanilic acid. The refractoriness of the eosinophil response in sensitized animals to repeated injections of antigen is due to neutralization of the hypersensitive state and not to depletion of the eosinophil reserves. The author could find no eosinophilotactic substances in the blood of shocked animals.

CORNBLEET, Chicago.

NONSPECIFIC SEROLOGIC REACTIONS FOR SYPHILIS IN INFANTS AND CHILDREN. ALLEN HILL, J. Pediat. **21**:207 (Aug.) 1942.

A ten year survey of serologic data was made from records of children admitted to the Infants' and Children's Hospitals, Boston. The Hinton and the Davies-

Hinton tests were used exclusively. In all, 26,700 tests were made. Negative reactions were obtained in 26,645 tests on presumably nonsyphilitic patients. Two hundred and forty-two nonspecific reactions, positive and doubtful, were recorded. Acute infections in general produced these false positive reactions.

STETTENBENZ, Buffalo, N. Y. [AM. J. DIS. CHILD.]

THE QUANTITATIVE NATURE OF THE COACTION OF BISMUTH AND ARSENICAL COMPOUNDS IN THE THERAPY OF EXPERIMENTAL SYPHILIS. N. M. CLAUSEN, B. J. LONGLEY and A. L. TATUM, J. Pharmacol. & Exper. Therap. **74**:324 (March) 1942.

The authors investigated the use of bismuth and arsenic compounds concurrently in the treatment of rabbits with active syphilis. It was found that the use was additive and that there was no potentiation or antagonism. When the action of two drugs administered at the same time is equal to the sum of their individual effects, the response is termed simple addition. For example, if 25, 50 or 75 per cent of the minimal curative dose of an arsenical is given with 75, 50 or 25 per cent, respectively, of the minimal curative dose of a bismuth preparation and cure is obtained with each combination, simple addition has occurred. However, the cotoxicity of the two groups was less than their separate toxicities, which means that there is a greater margin of safety when the two types of drugs are used concurrently.

PILCHER, Cleveland. [AM. J. DIS. CHILD.]

RHINOPHYMA, WITH NEW ETIOLOGIC AND THERAPEUTIC CONSIDERATIONS. MICHAEL M. WOLFE, Laryngoscope **53**:172 (March) 1943.

In the literature of the past twenty years, rhinophyma has been held to be the terminal phase of acne rosacea. The excessive use of alcohol, tea and coffee has been considered causative. There are several weaknesses in these etiologic theories. The author offers some new considerations: 1. The condition may be related to an abnormal output of androgens. Such an output occurs in the male at about the same age as does rhinophyma. 2. At about the same age, some men, for various reasons, are on restricted diets, often low in vitamin C. A deficiency of this vitamin may be an etiologic factor. Reasons for these theories are given.

A case is then presented, with laboratory observations. Koagamin (an aqueous preparation of oxalic and malonic acids) and koaginol (a preparation in oil of the diethyl esters of dicarboxyl acids) were used to reduce bleeding. Vitamin C, which had been low in the diet, was supplied in adequate amounts. The rhinophymatous tissue was pared down with a razor blade. An excellent result was obtained.

HITSCHLER, Philadelphia. [ARCH. OTOLARYNG.]

HEREDITARY TELANGIECTASIS. LAWRENCE I. STELLAR, New England J. Med. **226**:336 (Feb. 26) 1942.

Hereditary telangiectasis is a pathologic condition that occurs in and is transmitted through both sexes. The characteristic lesions, small red or purplish papules, occur in the mucous membranes, especially those of the upper respiratory and gastrointestinal tracts, in the skin and in some viscera. Hemorrhage has been reported most commonly in the form of epistaxis. The amount of blood lost tends to increase in later life.

A detailed report of a case of this disease in an adult is given. The severe anemia (hemoglobin content 8 per cent, red cell count 900,000) was overcome by transfusions, administration of iron and daily intramuscular injections of liver extract.

GENGENBACH, Denver. [AM. J. DIS. CHILD.]

THE USE OF COAL TAR IN THE TREATMENT OF SKIN DISEASES. F. C. COMBES, New England J. Med. **228**:384 (March 25) 1943.

Combes stresses the importance of the selection of tar and the method of compounding the mixture as factors determining its effectiveness and freedom from injurious effects. The finished product should be smooth, homogeneous and almost black.

A paste compounded according to the following formula, of standard manufacture, is recommended as helpful for a large group of diseases of the skin: crude coal tar, 2.88 parts; zinc oxide, 5.37 parts; starch, 53.75 parts, and petrolatum, to make 100 parts.

RONCHESE, Providence, R. I.

TREATMENT OF WOUNDS AND INFLAMMATION BY X-RAYS AND RADIUM RAYS. N. S. FINZI and F. FREUND, Brit. M. J. **1**:34 (Jan. 9) 1943.

Finzi and Freund discuss their impressions of the value of radiotherapy for wounds and inflammations, indicating that from a clinical and experimental standpoint there are two uses to which irradiation can be put. One is the acceleration of the healing of clean wounds and the prevention of keloid, and the other is the checking of the local inflammatory reaction.

Their technic seems to be of value in treatment of carbuncles, erysipelas, cellulitis, lymphangitis, gas gangrene, actinomycosis, local tuberculous infections and local septic conditions.

It is believed that scars are much better, thinner and less obvious in wounds that are treated with roentgen rays and keloids will be prevented if irradiation takes place soon after trauma.

From the standpoint of its wartime aspect, healing can be accelerated and the period of incapacity considerably shortened.

An average of 50 roentgen units produced with 140 kilovolts and filtered with 5 mm. of aluminum was given once a week. In treatment of acute conditions 30 r is given at three to four day intervals. Large doses are less desirable.

SYPHILIS TREATED WITH DAILY MULTIPLE INJECTIONS OF MAPHARSIDE. J. KVITTINGEN, Brit. M. J. **1**:91 (Jan. 16) 1943.

Kvittingen treated a series of 100 patients with early syphilis with multiple daily injections of mapharside (arsenoxide) given in doses of 0.04 grain (0.003 Gm.) four times each day for five successive days. The first 82 patients received 0.76 grain (0.05 Gm.) of the drug and the remaining 18 received a total of 1 grain (0.06 Gm.).

These injections were combined with the oral administration of 1,500 cc. of 6 per cent solution of dextrose. In only 1 case was there a serious reaction, which was characterized by headache, a morbilliform erythema, fever and convulsions, which was felt might possibly have been a toxic encephalitis accompanying a ninth day erythema.

Among the 100 patients there were 3 serologic and clinical relapses.

FOOT-AND-MOUTH DISEASE IN MAN. HENRYK DLUGOSZ, Brit. M. J. **1**:189 (Feb. 13) 1943.

Dlugosz reports 2 cases of foot and mouth disease in man. In 1 case the infection was internal via the

digestive system, and in the other it was external. The incubation period is fourteen days. The disease was characterized by headache, weakness and pain in the extremities. On the third day salivation with superficial ulceration of the oral mucous membrane and vesicles of the skin about the mouth appeared, followed by the appearance of vesicles on the palms and soles and around the nails. The temperature, which had been high, fell after the appearance of the cutaneous lesions. Treatment was purely symptomatic.

SOCIAL ASPECTS OF ALLERGY. E. M. FRAENKEL, Brit. M. J. **1**:216 (Feb. 20) 1943.

Extrinsic and intrinsic allergic factors are discussed by Fraenkel from the standpoint of acceptability of affected persons for the armed services and for various occupations.

He believes that persons without organic complications and without a family or personal history of other allergic complaints are most readily adjusted to industry. Desensitization to specific substances may render the subject fit for his occupation or for the services. When the subject is known to be sensitive to an allergen, he should be placed in a position where he can avoid this substance.

ACUTE DISSEMINATED LUPUS ERYTHEMATOSUS: RECOVERY WITH SULPHANILAMIDE. J. E. S. PEARSON, Brit. M. J. **1**:253 (Feb. 27) 1943.

Pearson reports the successful treatment of 1 case of acute disseminated lupus erythematosus with sulfanilamide. The patient received 93 Gm. of the drug over a period of three weeks.

MEMBRANOUS INFLAMMATION OF OROPHARYNX, NOSE AND CONJUNCTIVA DUE TO SULPHATHIAZOLE. I. M. SCHNEE, Brit. M. J. **1**:506 (April 24) 1943.

The author describes an unusual reaction to sulfathiazole which appeared in a 28 year old man who had received 18 Gm. of the drug within five days, after which the eyes became inflamed and discharged.

The following day his mouth became sore and covered with a membrane; these manifestations were associated with a recurrence of fever. The reaction involved the conjunctivas and the oral and nasal mucosa and consisted of an inflamed surface with a smooth, thick, well formed, gray membrane. Organisms were not obtained on culture.

The reaction persisted as long as sulfathiazole was given, but it promptly disappeared when use of the drug was discontinued.

THE EFFECT OF ACID, ALKALI AND MEALS ON THE BLOOD LEVEL AND EXCRETION OF SULPHAPYRIDINE IN CHILDREN. H. ELLIS C. WILSON, Brit. M. J. **1**:507 (April 24) 1943.

Wilson determined that there is no advantage with respect to concentration in the blood and urinary excretion (and hence absorption) of the drug from the administration of acid or alkali with sulfapyridine.

The excretion of the drug was greater when it was taken immediately after rather than two hours before a meal, but the difference was of no clinical significance.

SHAW, Chattanooga, Tenn.

Society Transactions

CLEVELAND DERMATOLOGICAL SOCIETY

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J. R. DRIVER, M.D., *Reporter*

April 22, 1943

Adiposis Dolorosa. Presented by DR. HUGO HECHT.

B. G., a white woman aged 47, of Hungarian extraction, complains of weakness in both arms and painful lumps under the skin present since April 1932. Later the left arm became afflicted. There were no nervous disturbances and no involvement of the stomach and uterus. Menstruation has been normal. The patient has been married for twenty-seven years and has six children, four girls and two boys, all of whom are normal. The middle lobe of the thyroid gland is enlarged.

Symmetrically on both arms are subcutaneous nodular deposits of the size of an almond, which are not adherent to the skin. The skin is normal, but on the radial sides there is a small reddish stripe along the whole length of the arms. The soft nodules are painful, especially on pressure. The legs are not affected.

Treatment consisting of ingestion of 2 grains (0.13 Gm.) of thyroidin daily for six weeks resulted in the tumors' becoming softer and less painful.

DISCUSSION

DR. HUGHO HECHT: This disease is seen almost exclusively in women. The only man known to have this disease in the last ten years was a 73 year old patient who was observed by Copel and Matheson in London, England. In all other cases that have been published or presented during the last ten years the patients were females. Treatment is usually unsatisfactory. Boller, of Vienna, treated 5 patients with injections of procaine hydrochloride in 2 to 4 per cent dilutions. The pains disappeared completely, but the tumors did not. Wohl and Pastor, of Philadelphia, treated 3 patients with neostigmine and amino acetic acid with fair results. St. K. Montgomery recommended roentgen ray treatment of the hypophysis. The pains disappeared after the treatment, but the tumors remained unchanged.

I treated this patient with thyroidin, and the pain completely disappeared and the tumors became softer and smaller.

The first person who described this disease was an American, Francis Xavier Dercum, of Philadelphia, but most of the scientific study of the disease was done in France.

Keratosis Palmaris et Plantaris. Presented by DR. HUGO HECHT.

B. E., a white woman aged 28, married and without children, noticed the present disease when she was 7 years of age. It started simultaneously on both hands and feet and became intensified with time. The menstruation is irregular, but there is no history of previous diseases. The only known member of her family with the same disease is her paternal grandfather.

Both palms and soles are covered with thick, hard, yellowish, calloused plates approximately 0.5 cm. in thickness. The span of both feet is normal. The finger nails are slightly affected, while the toe nails are affected to a greater degree. The pinkish halo usually seen at the edges of the palms is not distinct, but it is present.

Treatment consisted of the daily administration of 100,000 U. S. P. units of vitamin A daily, three roentgen ray treatments and local use of an ointment containing 3 per cent salicylic acid.

DISCUSSION

DR. G. W. BINKLEY: It is well established that these keratoses are hereditary and are nevoid conditions. I inquired where her grandfather came from, thinking he might have come from the island of Meleda. The patient states that she is Hungarian. The unusual feature of this case is the intense yellow color present in the stratum corneum. It was especially noticeable on the feet.

DR. J. A. GAMMEL: Have any of the members had favorable experiences as far as treatment is concerned? Some dermatologists have prescribed a diet rich in vitamin A. I note that this patient, too, gets large doses of vitamin A. I have had some success in the past with roentgen therapy, but it did not last. After a few months the disease recurred, and after two years it was about the same as before.

DR. J. R. DRIVER: I should like to ask Dr. Hecht if he has observed this patient over a long period and if this yellow—almost orange—color has always been present or whether it has been acquired?

DR. HUGO HECHT: Since the patient was 7 years old, the disease has always been present. She was treated with vitamin A, 100,000 U. S. P. units a day for many weeks. In my experience, the vitamin A treatment is useful only in cases of acquired keratosis. When the disease is hereditary, this therapy is of little value. I also gave her roentgen irradiations. The best treatment is to use some greasy sticky ointment to soften the skin. Then the skin peels off as it does after a burn. The cure is not permanent, and in a few weeks the eruption recurs.

Urticaria Pigmentosa, Adult Type. Presented by DR. H. G. MISKJIAN and DR. E. C. STERN.

J. D., a white man aged 31, has had an eruption on his trunk, arms, forearms and thighs for many years. There are no subjective symptoms.

The eruption is composed of circular or oval slightly raised brown papules 2 to 3 mm. in diameter, profusely scattered over the involved areas. They are discrete and at about the same distance from each other. They never become confluent. On the thighs the lesions are slightly larger than on the trunk.

Vitropression flattens them, leaving only a light brown macule. Rubbing one of the papules makes it red and edematous and increases its size.

Histologic examination showed that the epidermis was normal except in one feature: a definite hyperpigmentation of the cells of the basal layer. Cells con-

gamin, melanin were also found in the malpighian layer, above the basal cells.

The corium showed a sharply limited edema in its superficial layers. In this same region there were a great many cells with large, clear, round or oval nuclei. In most cases the cytoplasm of these cells did not stand out clearly. In some instances, however, it appeared as a darkly stained zone around the nuclei. It showed no granulations with the ordinary hemalum and eosin stain. There were few lymphocytes, no polymorphonuclear leukocytes and fairly numerous eosinophils in the lesion.

The changes described were strictly limited to the papule; the rest of the skin was perfectly normal. Special stains could not be made to study the basophilic granules.

DISCUSSION

DR. H. G. MISKJIAN: The reason I presented the patient is that his is a typical case of the adult type of urticaria pigmentosa. I thought it might be interesting for the younger members of the society to see it. The biopsy is characteristic.

DR. BENJAMIN LEVINE: I employed roentgen ray therapy in 1 case, with temporary disappearance of the lesions.

Acne Keloid. Presented by DR. BENJAMIN LEVINE.

H. J., a white man aged 22, was treated three years ago with roentgen rays for acne of the chest and back. A total of 1,000 r was administered. Acne keloids were present and were not influenced by this treatment. During the past years they have increased in size and have become painful.

The patient is a robust and well developed young man, apparently in good health. His face is free of any evidence of acne. The skin of the chest, shoulders and back is studded with numerous large firm livid erythematous keloidal nodules. There is one keloidal lesion on his right forearm from a small incised wound. The skin over the involved area in general is thicker and denser than usual and is studded with numerous small white atrophic scars.

DISCUSSION

DR. G. W. BINKLEY: I saw this young man in 1940, at which time his acne had existed for about six years. Keloid formation was already present. During the summer of 1940 I administered 700 r of low voltage roentgen irradiation for the acne without any effect on the keloids.

DR. J. A. GAMMEL: Sixteen or seventeen years ago at the outpatient department of Lakeside Hospital I saw a Negro woman about as badly involved with acne keloids as this patient, and I took some photographs. Ten or eleven years later she again visited the outpatient department, and the keloids had spontaneously disappeared. I hope the same thing happens to this patient.

DR. R. E. BARNEY: The keloidal tendency is not present in all of the healed acne lesions, since one sees here and there normal scars. I feel that this observation is important, since all dermatologists remove cutaneous blemishes such as nevi and warts and, of course, wish to avoid keloid formation. The keloidal tendency is not present at all times in the same patient. I recall a patient who when first seen presented warts which were desiccated and healing resulted in flat scar formation. At a later date two warts developed; they were treated in the same manner, but keloids developed when they healed. I think one should keep the possibility of keloids in mind whenever cutaneous lesions are removed.

DR. BENJAMIN LEVINE: I have had the same experience as Dr. Barney. In the case presented, Dr. Barney pointed out that some of the scars are actually atrophic. The others show definite keloid formation. Apparently it depends on what time they developed whether there was atrophy or keloid formation. I noted in performing the biopsy that when I cut through what was apparently normal skin, it was hard and firm and that a sharp knife cut it with difficulty.

DR. J. R. DRIVER: I think that probably what Dr. Barney and Dr. Levine are talking about is that at certain times a patient may acquire keloids and other times not. I believe that the development of keloids depends in large measure on the degree of trauma that has resulted. After the removal of warts I have noted that some of the sites would become keloidal and others would not. I believe that in the ones that become keloidal there was more trauma produced in removing them. If considerable trauma of the corium results from the removal of warts, keloids are likely to develop.

DR. R. E. BARNEY: Dr. Driver's observation is interesting. There is more damage to the skin from the actual cautery than from desiccation. It is therefore altogether possible that keloidal formation is more apt to follow the method producing most damage to the skin. The fact that existing scars are not keloidal does not mean that keloids will not develop when cutaneous lesions are removed.

DR. J. R. DRIVER: There is a regional susceptibility, too. A cut on the hands may heal without a resulting keloid, while on the face or some other area the same amount of trauma will produce a keloid. I have noticed that when I have removed moles or verrucae from the sides of the neck, from the chest or from the region of the breasts, particularly in women, the tendency to keloid formation is greater than when similar lesions are removed from the face.

Two Cases of Pseudoxanthoma Elasticum. Presented by DR. W. R. HUBLER.

CASE 1.—A. G., a white woman aged 50, presented from the department of dermatology and syphilology, University Hospitals, was first seen in 1936, complaining of progressive loss of vision due to retinal hemorrhages of one year's duration and changes in the skin present as long as she could remember. Retinal hemorrhages continued for about six months longer. Her visual acuity has since remained stationary at one sixtieth of normal. The lesions of the skin have remained unchanged. There is no family history of the disease.

There are symmetric palm-sized areas of a peculiar pigskin-like mottling due to the presence of closely spaced small flat yellow papules on an atrophic background on the sides of the neck and above the anterior axillary regions. Smaller areas are present in the cubital and popliteal spaces and in the inguinal region.

Retinoscopic examination showed numerous whitish areas of retinal degeneration in the macular region and several long whitish streaks around the head of the optic nerve. The remainder of the physical examination revealed nothing significant.

The Kline reaction of the blood was negative. The hemogram, including a platelet count and prothrombin test, was normal. The bleeding time was seven and

eight minutes respectively on two examinations. The clotting time was normal.

Histologic examination revealed the epidermis to be essentially normal. A few small groups of lymphocytes were seen in the upper part of the corium. The deeper areas of the corium showed both basophilic and acidophilic portions. The fibers were irregularly arranged and had indistinct outlines. A section stained by the Van Gieson method showed decided fragmentation of the elastic fibers, particularly in the deeper portion of the corium.

CASE 2.—E. P., a white woman aged 27, presented from the department of dermatology and syphilology, University Hospitals, complains of progressive decrease in vision of eighteen months' duration, due to the appearance of several positive scotomas which have caused considerable distortion of vision, particularly of the right eye. Changes in the skin have been present as long as she can remember. She had whooping cough and pneumonia as an infant and sinusitis and bronchiectasis for several years.

Two older sisters show more severe cutaneous changes of the same type. One of them has a slight visual defect. Two brothers show no evidence of the disease.

The patient appears to be mentally and physically above average. There are several well defined symmetric areas of cutaneous change located on the sides of the neck, in the axillas, on the cubital areas and in the genitocrural regions. Each area consists of a patch of closely spaced pinhead-sized smooth flat yellow papules on an atrophic background. The turgor of the skin in these areas is poor, and there is a tendency for the skin to lie in folds.

On external examination both eyes are essentially normal. Examination of the fundus of the right eye shows clear media and the disk of good color with the margins blurred. The blood vessels appear normal. Surrounding the disk is a dark brownish streak which lies beneath the retinal vessels and above the choroidal vessels, and radiating from this ring of pigment are numerous other brownish streaks, the width of which varies from a fine line to a streak somewhat wider than the retinal veins. In the macular region is a large disciform area of degeneration. There are several scattered hemorrhages, but the remainder of the fundus is normal. Examination of the left fundus shows the media clear, the disk with blurred margins and the typical brownish angioid streaks as described in the other fundus. The macula in this eye appears normal.

The Kline test of the blood was negative. The basal metabolic rate was + 5 per cent. The urinalysis and hemogram gave normal results. The serum calcium, phosphorus, phosphatase, cholesterol and proteins were within normal limits. The bleeding time was ten minutes, and the clotting time two and one-half minutes. Roentgenograms of the chest and skull showed essentially normal conditions.

Histologic examination revealed a normal epidermis. The dermis was for the most part acidophilic, but some basophilic areas were seen. The normal complement of sweat and sebaceous glands was present. The connective tissue was compact and moderately cellular. There was a peculiar hazy appearance to most of the dermal tissue. Sections stained by the Van Gieson method showed in the dermis many relatively broad, variable-sized elastic fibers. The majority of these were fragmented.

DISCUSSION OF CASES OF PSEUDOXANTHOMA

DR. G. W. BINKLEY: Case 2 is that of a young woman who presents a typical combined lesion of cutaneous and retinal pseudoxanthoma. There seems to be a predilection for females. As is well known, pseudoxanthoma elasticum may involve the skin only. The patient is concerned about her vision because she has had a series of what she calls "blind spots," which can be interpreted as small hemorrhages in the choroid. Because of the lack of any known adequate therapy, she was referred to Dr. R. A. Shipley, an internist, for study. A number of laboratory tests, including roentgenograms of the large vessels, were made, with a particular search for a possible dilatation of the aorta. This was not found, and its absence can be correlated with the fact that the patient has a normal blood pressure. There have been cases reported in which there was dilatation of the aorta in the presence of hypertension. Other tests of interest were determinations of the bleeding time and clotting time. The clotting time was two minutes and the bleeding time ten minutes in this case. This was interesting because in case 1 there was also a prolonged bleeding time. This is the first time that this observation has been made in a case of pseudoxanthoma elasticum, and the explanation is not known. However, there are two possibilities: (1) that there is an actual disturbance in the mechanism of local clotting, or (2) that it may be purely structural, due to the loss of function of elastic tissue in the small blood vessels. I have searched the literature for the last five years or more and have found no worth while therapeutic suggestions. It is most likely a hereditary mesodermal defect.

METROPOLITAN DERMATOLOGICAL SOCIETY

LAIRD VAN DYCK, M.D., *President*

ROYAL M. MONTGOMERY, M.D., *Secretary*

Oct. 18, 1943

Pustular Psoriasis. Presented by DR. THOMAS N. GRAHAM.

M.D., a white woman aged 51, was first examined by me on May 3, 1943. She complained of an eruption of three months' duration on the hands, the left elbow and the left leg.

Examination showed numerous deep-seated pustules surrounded by erythematous, scaly patches on both palms. There was a small patch of micaceous silvery scales on an erythematous base on the extensor surface of the left forearm just below the elbow. There was a similar patch on the extensor surface of the left leg midway between the ankle and knee.

The eruption was treated with 10 per cent vioform (Ciba) ointment and with a fractional exposure to roentgen radiation. Within a few weeks it cleared entirely except for a few pustules and some scaling on the left palm. About a month later there was a recurrence of the eruption on the palms and a similar outbreak on the soles and lateral aspects of the feet. A 15 per cent vioform (Ciba) ointment, roentgen ray therapy and ultraviolet irradiation failed to make any appreciable change in the eruption.

Roentgenograms of the teeth several months before the onset of the eruption failed to show any abscesses. The patient has had her tonsils removed. She gives no history of sore throat. There is no evidence of foci of infection.

Mycologic examination did not reveal the presence of fungi.

The patient is presented for therapeutic suggestion.

DISCUSSION

DR. R. KELLY: I think this is the first case of psoriasis I would recognize as purely pustular in contrast to what Dr. Andrews and I felt was pustular eruption of the palms and soles. This patient has definite psoriasis in other localities. I do not think it is a bacterid, but it is possible that with clearing of any foci of infection she will improve.

DR. R. M. MONTGOMERY: This case keeps one confused as to whether the diagnosis is pustular psoriasis or psoriasis with pustules. I consider it a case of pustular psoriasis. As far as therapeutic suggestions are concerned, I have had best results with tars or anthralin (dihydroxyanthranol) ointment. Roentgen treatment does not help at all.

DR. G. F. MACHACEK: For therapy I suggest the use of 2 or 3 per cent tincture of resorcin, perhaps even used as a hot solution.

DR. T. N. GRAHAM: I believe it probable that pustular psoriasis and pustular bacterid are different dermatoses. This patient has some typical psoriatic lesions, and the patient whose case I reported eight years ago had definite lesions of psoriasis (Graham, T. N.: Generalized Pustular Psoriasis, ARCH. DERMAT. & SYPH. **28**:208 [Aug.] 1935). Many of the patients reported as having pustular psoriasis have had no lesions typical of psoriasis, and their cases have been identical with other cases reported as pustular bacterids. The patient tonight has been examined for foci of infection, and none have been found. I think that this is a case of pustular psoriasis.

Familial Benign Chronic Pemphigus. Presented by DR. ROYAL M. MONTGOMERY.

E. O., a man aged 30, has had the present eruption on the scrotum for eight years and on the shoulders for seven years. His mother has a vesicular eruption on the dorsum of the hands, especially in the winter. The patient's condition is worse in the warm weather.

At present, on the shoulders there are irregular areas of depigmentation and some atrophy. On the right shoulder there are small areas of erythema covered with crusts. Some vesiculation is present in both axillas. The scrotum and the groins are normal. One month ago the erythematous areas on the shoulders had vesicular borders and were crusted in the center. The scrotum was erythematous, edematous and fissured. The skin in the groins was also erythematous and indurated. Mycologic examination of the groin did not reveal fungi. Biopsy of a specimen from the shoulders showed familial benign chronic pemphigus. Roentgen therapy did not improve the eruption. Therapy with large amounts of vitamin A produced no improvement. Soothing lotions and ointments gave temporary relief. With the advent of cooler weather, there was gradual improvement. The patient was rejected from the Army because of the eruption.

Pathologic Report.—The epidermis revealed the following changes: There was intraepidermic fissuring and vesicle formation, at some points more pronounced than at others. The fissuring apparently had taken place within the rete, and one could note many rete cells, some of which appeared swollen, floating freely within the cavity formed by the aforementioned process. Within the vesicles there was some fibrin, many polymorphonuclear leukocytes and some small round cells. Some of the rete cells lining the wall of the vesicles were suggestive of *corps ronds.* In the basal layer at several points there was an intracellular brownish pigment. The vessels of the upper part of the corium were dilated, and there was a moderate diffuse cellular infiltration composed of small round cells, polymorphonuclear leukocytes and some wandering connective tissue cells. A parenchymatous edema of the collagen in this zone may be noted. The diagnosis is chronic benign pemphigus (Hailey-Hailey). (Diagnosed and described by Dr. Charles F. Sims.)

DISCUSSION

DR. T. N. GRAHAM: A diagnosis of pemphigus could not be made clinically tonight. However, in view of the history and of the histologic changes, I think that this diagnosis should be accepted.

DR. J. L. MILLER: I think that this case could fall in the group of cases of the disease that Hailey and Hailey reported. Chronic benign pemphigus is probably a bad term. The main question is: Should that disease be accepted as an entity? I question if it is an entity at all. I feel that it has no relation to what one ordinarily considers pemphigus.

DR. G. F. MACHACEK: I should make a diagnosis of hatband dermatitis. One must refer to biopsies, and naturally the diagnosis of benign pemphigus is dependent on the histopathologic changes. In McCarthy's textbook pemphigus eruptions with changes similar to those in Darier's disease are described. The cases reported by Hailey and Hailey were peculiar. In them the disease occurred in 2 brothers who had localized lesions which recurred in the same location; hence a bullous nevoid cutaneous anomaly was a proper consideration.

DR. L. S. VAN DYCK: This disease has also been called dyskeratosis bullosa, which seems to me a more appropriate name than pemphigus.

DR. R. M. MONTGOMERY: One month ago this patient presented a typical syndrome which Hailey and Hailey described as "familial benign chronic pemphigus" (ARCH. DERMAT. & SYPH. **39**:679 [April] 1939). He has had 200 r of roentgen rays to the shoulder, with no benefit, and also high vitamin A therapy for six months, with no benefit. Nothing seems to help except cooler weather. At present he is using weak tannic acid in alcohol. He has shown some improvement with soothing remedies in the last month. The main complaint has been itching of the scrotum. It has been erythematous and fissured. The groins also have been red, indurated and fissured. These features are not present tonight.

Cutis Hyperelastica. Presented by DR. J. LOWRY MILLER.

K. C., a girl aged 11 years, has been double jointed and has had rubbery skin since birth. Hematomas have always formed after slight trauma and have often necessitated aspiration. Cuts heal with scarring. For the past six years the skin over the knees and the left elbow has been almost continuously affected with hematomas. Some muscular weakness was noted, such as inability to hold a pencil in the fingers for a long time. The girl's mental development is apparently normal. All joints, including the small joints of the fingers, may be hyperextended. Over the large joints the skin may be easily stretched, and it feels like rubber. On the left elbow and both knees there are palm-sized areas where the skin is as thin as tissue paper, scarred and bluish from blood pigment. Scars are presented on the forehead, arms and legs. Laboratory tests showed that the blood count was normal; roentgenograms of the knees revealed normal conditions except for hyperextensibility. The bleeding time was

three minutes, the clotting time seven minutes, and the prothrombin time twenty-five and seven-tenths seconds (normal is eighteen to twenty-four seconds). Treatment consisted of ingestion of lemon rind and lemon juice.

DR. T. N. GRAHAM: I think that this patient presents an excellent example of the Danlos syndrome.

DR. R. M. MONTGOMERY: I do not believe any plastic surgical procedures should be attempted in this case.

DR. R. KELLY: I agree with Dr. Montgomery.

DR. G. F. MACHACEK: This is the type of disease sometimes misdiagnosed as dystropic epidermolysis bullosa. One should wait until the child is older before attempting to excise the scars, as she probably will suffer more injury to her knees.

DR. J. L. MILLER: Most patients with the Ehlers-Danlos syndrome show a certain amount of mental retardation. This child is alert. Some have been practically unable to walk. With respect to chemical abnormality, there has been 1 case reported in which there was an excess of creatine in the urine amounting to 400 mg. in twenty-four hours. I have not studied the excretion of creatine in this case. In some cases operations have been performed for fixation of the knee joints. These children often fall repeatedly. In this case the mother has been able to reduce such difficulty by instructing the child. I have given her lemon rind and lemon juice, and there has been reduction in the amount of hematoma formation. Whether this has been due to therapy or to the care which the mother has given the child we are not certain, but at any rate the child has not had hematomas to such an extent as before.

Vitiligo, Canities and Alopecia Areata (Treated for Twelve Months with Paraaminobenzoic Acid and Calcium Pantothenate, with Negative Results). Presented by DR. LAIRD S. VAN DYCK.

A. G. A., a white commission merchant aged 48, a native of Lebanon who has lived in Brooklyn for the past thirty years, six years ago first noticed patches of loss of hair and patches of white hair in his scalp, eyebrows and beard. At the same time loss of pigment occurred on the arms, shoulders, face and neck in sharply outlined patches surrounded by areas of hyperpigmentation. His general health has always been good, although he is a nervous, high-strung type of man. His pharyngeal and corneal reflexes are absent. The Wassermann reaction of the blood was negative. The urine and blood counts were normal. The blood pressure was 108 systolic and 90 diastolic. This patient was first seen four years ago, and no attempt was made at that time to treat the vitiligo. The patches of alopecia areata were treated by application of pure phenol and ultraviolet irradiation at biweekly intervals for four months. By that time hair was returning in all of the bald spots, although most of the hairs in these areas were pure white. There was no noticeable change in any of the vitiliginous areas.

After being lost to observation for a year, the patient returned when he read in the public press that an anti-gray-hair vitamin had been discovered. At his request paraaminobenzoic acid was prescribed in doses of 200 to 400 mg. per day. No change in color of the hair or in any of the vitiliginous patches was noted. He attributed the fact that he had had no colds during one entire winter to the tablets of paraaminobenzoic acid. Later, calcium pantothenate in doses of 10 mg. three times a day was added to the paraaminobenzoic acid. After three months of this medication no improvement had appeared, and the patient discontinued all medication for several months. During the following summer he noticed that his face reacted more readily to exposure to the sun than it had previously. Some of the white spots became red after short exposure to the sunlight and retained some of the pinkness for days afterward. Encouraged by this change, he resumed the ingestion of paraaminobenzoic acid and calcium pantothenate, later adding colloidal manganese twice a day, but the areas of vitiligo appear to me to be unchanged.

DISCUSSION

DR. T. N. GRAHAM: Was there any improvement with paraaminobenzoic acid?

DR. L. S. VAN DYCK: I have seen no change except a slight pinkness in the depigmented areas.

DR. G. F. MACHACEK: The intermediate lobe of the pituitary gland is said to affect the chromatoblasts.

DR. J. L. MILLER: As to the failure of these drugs to change the color of hair, one is dealing here with alopecia areata. I noticed an area of alopecia on the side of the head, and there is no evidence of change of color there. I believe that there are cases in which some factor of the vitamin B complex has changed the color of the hair. I have seen 2 patients who were taking vitamin B for other purposes and in whom there was a definite change of the color of the hair. I think that in certain cases such results have been attained, but I believe that the 2 mentioned tonight are not so involved.

Sarcoidosis. Presented by DR. J. LOWRY MILLER.

J. G., a Negro woman school teacher aged 28, presented lesions on the face, on the left side of the front of the neck and on the fingers. The first lesion appeared on the right cheek eight years ago without any constitutional symptoms. Slowly new lesions have appeared on the face and the fingers. Several lesions were removed by local excision and desiccation, but there was recurrence. The patient says the lesions have varied in prominence from time to time but have never disappeared completely. She has always lived in the United States.

The lesions consist of about thirty pea-sized to silver quarter–sized elevated flat-topped bluish red nonulcerated infiltrations. They are soft to palpation and show grayish foci under diascopic pressure. They are situated on the entire face, including the lobes of the ears, the vermilion border of the lips and the eyelids. The two distal phalanges of all her fingers are enlarged, and the skin shows infiltrations similar to those on the face. A few lesions are present on the front of the neck. Histologic examination of skin from the neck showed typical Boeck's sarcoid.

The tuberculin test elicited a negative reaction with a 1 : 10,000 dilution. The serum inorganic phosphorus, phosphatase, calcium, urea, bilirubin, protein, albumin, globulin and euglobulin levels and the fasting blood sugar level were all within normal limits. The cholesterol content of the blood was 222 mg. per hundred cubic centimeters. The erythrocyte sedimentation rate was 2 mm. in one hour. Nasal scrapings did not contain Bacillus leprae. Roentgenograms of the chest showed evidence of widening of both hilar regions and of the mediastinum. Roentgenograms of the hands showed definite evidence of cystic changes affecting the middle phalanges and the terminal phalanges of the thumb. Stereoscopic examination showed bilateral hilar glandular enlargement of some degree, with enlargement of some of the paratracheal glands. The toes showed to a lesser degree cystic changes in the terminal phalanges similar to those of the fingers.

DISCUSSION

DR. R. KELLY: My impression of the diagnosis would be sarcoidosis, but because of the lesions on the ear I think leprosy should be considered seriously. I understand that the roentgenograms showed shadows in the lungs that suggest sarcoid. I favor the diagnosis of sarcoid from the clinical standpoint, and I suppose investigations have been made for lesions that might appear in bones.

DR. R. M. MONTGOMERY: This patient shows typical generalized sarcoidosis with cutaneous lesions. The hand shows bony changes. I should like to know of any statistics giving the percentage of persons with Boeck's sarcoid who do not have lesions of the skin.

DR. T. N. GRAHAM: I think this is a typical case of Boeck's sarcoid.

DR. G. F. MACHACEK: There is an important question: What is against a diagnosis of leprosy? The patient has never been out of the United States. One would expect that if the disease is leprosy, she would have some neural changes. If she were from the tropics, one would have to consider leprosy. In some cases leprosy is diagnosed as sarcoid, and it is only after careful study that one can rule out this disease. One can find the same changes in leprosy as in sarcoid. There are some patients with sarcoid who have neural changes.

DR. J. L. MILLER: Sarcoid lesions of the skin occur in Boeck's sarcoid, in leprosy and in syphilis. Each case must be diagnosed on its merits. This is a case of Boeck's sarcoid for several reasons: (1) geography—the patient has never been south of South Carolina; (2) the lesions on the face—they have not produced the leonine expression which is characteristic of leprosy; (3) the changes on the ear—in leprosy there would be more scar formation by this time; (4) the absence of Hansen's bacillus in the direct smear and in the smear of nasal material. For these reasons I believe the case to be an instance of Boeck's sarcoid. As for treatment, the woman is an intelligent person who has had this disease for eight years and has decided to give us one year for any therapy which we may suggest. Tuberculin therapy can cure sarcoid, but one runs the risk of causing active tuberculosis. The next treatment that has been considered is use of chaulmoogra oil, and the third therapy, roentgen irradiation locally. She has had desiccation. I have not had experience with the use of chaulmoogra oil. I do not want to cloud the picture by roentgen therapy, which might give temporary improvement. Arsenic does reduce the lesion.

DR. L. S. VAN DYCK: I think it would be best to try an arsenic preparation and then chaulmoogra oil. If the patient fails to improve after two or three months, one might be justified in treating her with tuberculin after explaining the risks to her. In her present condition she is virtually a social outcast.

DR. G. F. MACHACEK: If it were possible to get some larger pieces of the tumors, could one not make an antigen to test her and then test other patients with sarcoids? Have you access to leprolin so that she could be tested?

A Case for Diagnosis (Granuloma Annulare?). Presented by DR. RICHARD KELLY.

M. B., a 4 year old white boy, born in the United States, is presented from Roosevelt Hospital. The patient was first seen on Oct. 5, 1943, and the mother stated that during the past eight months he had had recurrent eruptions involving the forearms and ankles. The lesions have been symptomless. There is no family history of tuberculosis. Roentgenograms of the chest on two occasions revealed nothing significant. Two Mantoux tests have elicited negative reactions. Urinalysis and a blood count showed values within normal limits. The appetite and general health are good; there has been no loss in weight, and the child appears to be healthy. The lesions presented are annular with a raised erythematous border and a whitish, slightly depressed center. They vary from 0.5 to 1 cm. in diameter.

DISCUSSION

DR. J. L. MILLER: It is a rather extensive granuloma annulare. The location is unusual. I cannot, however, offer a better diagnosis.

DR. T. N. GRAHAM: I think that the lesions of granuloma annulare are usually more papular and that they show more central clearing than these do.

DR. R. M. MONTGOMERY: I think this is a case of generalized granuloma annulare.

DR. L. S. VAN DYCK: I agree. I have seen other patients with just as many lesions on the arms and on the legs. Frequently removal of a specimen for biopsy seems to make a lesion disappear. Roentgen therapy is also efficacious.

DR. R. KELLY: I wonder if any one would disagree with the use of old tuberculin therapy.

DR. G. F. MACHACEK: I should not treat the patient with old tuberculin because of his youth and because of the grave risk of dissemination.

DR. J. L. MILLER: I agree.

DR. R. KELLY: I do not think that a child of this age, particularly one with this kind of skin, should be given roentgen irradiation. I think it is contraindicated because of the fair skin.

CHICAGO DERMATOLOGICAL SOCIETY

MICHAEL H. EBERT, M.D., *President*

MARCUS R. CARO, M.D., *Secretary*

Oct. 20, 1943

Lichen Sclerosus et Atrophicus. Presented by DR. S. J. ZAKON.

A. L., a white woman aged 44, states that about fifteen months ago she noticed an eruption on her wrists. There was no itching. Some months later a similar eruption appeared on the vulva and the inner aspect of the thighs and on the tongue and the buccal mucosa. A hysterectomy was performed six years ago, and now she has symptoms of the menopause.

Examination reveals an eruption involving the flexor aspect of both forearms, the buccal mucosa, the dorsum of the tongue, the vulva and the inner aspect of the thighs. The individual lesion is a glistening white, firm, slightly elevated polygonal papule. Most of the lesions are discrete, but grouping is also noted. In the mouth long, thin, ramifying white to bluish striations are seen on the buccal mucosa. On the dorsum of the tongue there are white plaques resembling leukoplakia. The conditions observed on histologic examination were compatible with those of lichen sclerosus et atrophicus.

DISCUSSION

DR. CARL W. LAYMON, Minneapolis: This case brings up the old question of the relationship of lichen sclerosus et atrophicus to lichen planus. I do not think that the matter can be considered settled. There are many dermatologists who think that lichen sclerosus et

atrophicus is a form of lichen planus, while others believe that it is a separate entity. Nomland and Montgomery and Hill feel that the two diseases are different. In this case the involvement on the wrists and the oral mucosa suggests lichen planus. This is the first patient that I have seen with involvement of the buccal mucosa and tongue, although there is a case of similar involvement in the early literature. I believe the sections are consistent with a diagnosis of lichen sclerosus.

DR. RUBEN NOMLAND, Iowa City: I think lichen sclerosus et atrophicus belongs in the group of atrophic diseases. The last 2 patients with lichen sclerosus et atrophicus that I have observed at the University Hospital had lesions in the mouth that looked like those of the present patient and hence looked like lichen planus.

DR. OLIVER S. ORMSBY: I want to say a word on account of the historical interest. I was one of the first men in this country to report this disease. I reported the first group of cases in 1910 at St. Louis (Lichen Planus Sclerosus et Atrophicus [Hallopeau]: Report of Six Cases [Five New] with a Review of the Literature, *J. A. M. A.* **55**:901 [Sept. 10] 1910). I have seen the evolution of the disease from one category to another. The original name had lichen planus incorporated in it, and it was thought for a long time that it was a form of lichen planus. Several years ago the disease was removed from the lichen planus group. It must be recognized that there is lichen planus atrophicus that is not of this type. In these types there are atrophic papules interspersed with the ordinary lichen planus papules. The lesions of the patient shown today are different from most of the lesions of lichen sclerosus because they do not present on the surface the blackish horny comedo-like plugs or cells where these plugs have been. All the patients with lichen sclerosus I have seen have had them. While this is like lichen sclerosus it is not a typical case. The lesions in the mouth are interesting, showing that there may be a connection in this case between lichen planus and this disease.

Lipid Proteinosis. Presented by DR. EVANGELINE E. STENHOUSE.

Mrs. I. McN., a housewife aged 23, complains of hoarseness and lesions in the mouth. According to her mother, she had been hoarse since the age of 9 months; her cry was weak and for years she could not speak above a whisper. As long as she can remember, she has had small whitish nodules on the oral and lingual mucosae; they have become larger and firmer within recent months. The tongue became bound down to the floor of the mouth to such an extent that surgical separation was undertaken at the age of 7 years.

The anterior fauces have been ulcerated frequently, which has caused great discomfort; relief has been obtained by intravenous injections and more recently by sulfadiazine. Serologic examinations of the blood serum have elicited negative reactions repeatedly. She has never had any lesions on the external genitalia. Her development and sexual maturity have been normal; her dental development also has been normal. She was married at the age of 17 years. Libido has been normal. She has one child, aged 5 years. Her parents are not blood relatives. There is no history of a similar disease or of diabetes in the family.

Examination reveals a normally developed woman. Along the margins of the upper eyelids, and to a lesser extent on the lower lids, are small flesh-colored tumors, 1 to 2 mm. in diameter. The vermilion borders of the lips are normal, but the inner surfaces are studded with slightly elevated yellowish white nodules, which give a firm consistency to the lower lip. Similar lesions are present on the buccal mucosa, soft palate, posterior pharyngeal wall, tonsillar fauces, tongue and floor of the mouth. The teeth are carious (her dentist was unwilling to repair them because of the condition of the oral mucosa). Laryngoscopic examination revealed similar lesions on the vocal cords.

Microscopic examination showed the earliest changes to consist of hyalinization of the collagen in the superficial tunica propria. The masses contained few nuclei. Later the degenerated collagen extended more deeply and was seen between normal collagen bundles. The blood vessels were surrounded by a dense layer of homogenized material.

Sections stained for fat showed lipid material in the thickened walls of the vessels and irregularly throughout the rest of the section.

The Kahn reaction of the blood serum was negative. The urine was normal on examination, and the blood count showed 5,210,000 erythrocytes, 14.7 Gm. of hemoglobin and 7,200 leukocytes, with 57 per cent polymorphonuclears, 38 per cent small lymphocytes, 4 per cent monocytes and 1 per cent eosinophils. The tolerance for dextrose was normal.

Studies of the total and fractional blood lipids gave the following values (in milligrams per hundred cubic centimeters): total lipid, 520 (average normal, 589); phospholipid, 170 (average normal, 196); total cholesterol, 185 (average normal, 162); ester cholesterol, 120 (average normal, 115); free cholesterol, 65 (average normal, 47); cholesterolized esters, 208; neutral fat, 75 (average normal, 154). Two other values for total lipids on different dates were 577 and 645 mg. per hundred cubic centimeters respectively.

The administration of lipocaic was begun on Aug. 18, 1943, starting with 12 capsules daily and rapidly increasing to 27 daily. After three and one-half weeks of such treatment she stated that her voice was less hoarse and the lower lip seemed softer, but she had diarrhea, probably due to the sodium sulfate with which the lipocaic is prepared. The dose was reduced to 12 capsules daily, which is now being continued.

DISCUSSION

DR. C. W. LAYMON, Minneapolis: It is a privilege to see an example of this unusual disease. The disease was originally reported as lipoidosis cutis et mucosae, and the name later was changed to lipid proteinosis. In many cases there is a pocklike scarring of the face, which was not present in this case. Also, the keratotic papules on the extremities which are usually seen were not present here. It was thought by Urbach and others that the substance in the lesions which stains red with sudan III is lipid joined chemically with a protein.

DR. S. W. BECKER: I saw the section from this patient before I saw the patient. My first impression was that it was a collagen degeneration. There were changes in the section similar to those in the patient reported by Dr. Reuter and me (Reuter, M. J., and Becker, S. W.: Colloid Degeneration [Collagen Degeneration] of the Skin, ARCH. DERMAT. & SYPH. 46: 695 [Nov.] 1942). It is interesting that the first person who reported this disease called it colloid degeneration. Later lipid was demonstrated, and so the name lipid proteinosis was given. The characteristic feature, as Dr. Laymon has said, is the early appearance in the mucous membrane with a definite picture seen in no other disease.

Dr. Evangeline E. Stenhouse: I was interested in this patient not only because this is a rare disease but because it follows so closely the previous reports and microscopic pictures. In my case there were several factors that did not correspond. I found no familial tendency, no consanguinity and no tendency toward diabetes. The other points have been brought out in the discussion.

I am eager to see what lipocaic will do. The patient thinks there is some improvement in the lower lip, but that is open to question. It was extremely stiff when I first saw her.

A Case for Dagnosis (Nevus of the Nails?). Presented by Dr. E. A. Oliver and (by invitation) Dr. S. M. Bluefarb.

R. B., a girl aged 12, presented herself for treatment because of a disease of the nails. Both thumbs show an atrophic ridge in the center of the nails and pigmentation. On the fifth finger of each hand there is a pigmented line through the center of the nail, but atrophy is not present. The changes in the nails appeared first at the age of 6. The toe nails are not involved, and there are no other cutaneous manifestations. Physical examination revealed no abnormalities.

Wassermann and Kahn reactions of the blood serum were negative. A blood count showed 5,140,000 erythrocytes, 13.6 Gm. of hemoglobin, and 6,200 leukocytes, with 58 per cent polymorphonuclears, 39 per cent lymphocytes, 1 per cent eosinophils and 1 per cent basophils. The basal metabolic rate was minus 18 per cent. Owing to the low basal metabolic rate, the patient has been receiving thyroid medication.

DISCUSSION

Dr. C. W. Finnerud: I have seen the same sort of change in a single nail in a considerable number of instances, commonly developing after the person is 30, 40 or 50 years old. It follows a thickening in the base of the nails in a localized area, causing a straight linear groove in the nail plate and bed. Nothing in the way of treatment is apparently serviceable. It is difficult for me to conceive of this being a nevus. With this symmetry of both thumbs and both little fingers, whatever the change is, I think it is the same as the grooving which I have seen in an occasional nail. If one of those nails could be destroyed and serial sections made—which of course is not practical—some accurate knowledge of the process might be obtained.

Dr. Theodore Cornbleet: I saw this girl in the clinic about a month ago. Her mother was present too, and she showed a similar dystrophy of the nails. It was apparent that the lesion of the nails was a nevus transmitted as a hereditary characteristic.

Dr. Maurice Oppenheim (by invitation): I presented a patient four years ago with lesions absolutely similar in appearance. In the middle of the nails of both thumbs extending from the free margin to the lunula there were sharply marginated stripes of dark color, the surface of which was cut by numerous parallel furrows. Outside of these ribbons, the nails were normal. There was neither inflammation nor reaction. I presented the case as an instance of a not yet described nevus of the nail. At the time some of the dermatologists here expressed the opinion that the lesion was traumatic. I insisted on my diagnosis because the history did not reveal any trauma, and the regularity and symmetry of the lesions spoke against it. The same is true in this case. I consider this case also as one of a peculiar nevus of the nail. The lesion has been present since the patient was a little girl.

Dr. Oliver S. Ormsby: I treated this patient's mother twelve years ago, at the time the child was born. She had a recalcitrant eruption on the palms, and there are still some relics left. It is interesting that the mother had the eruption at the time the child was born.

Dr. Edward A. Oliver: We felt that nevus was the most plausible diagnosis because of the absolute symmetry of involvement of both finger nails and both thumb nails.

In regard to the cases Dr. Finnerud mentioned, I think that if one will get a history from those patients one will often find that there has been a definite injury to the matrix of the nail at some time or other.

A Case for Diagnosis (Pityriasis Rubra Pilaris?). Presented by Dr. M. H. Ebert and (by invitation) Dr. M. Otsuka.

D. E., a white boy aged 4 years, presents an itching patchy eruption. Six months ago he sustained a traumatic injury of his left elbow, which was complicated by a lymphadenitis in the epitrochlear and later in the axillary region. About a week after he was discharged from the hospital his mother noticed a scaling of the palms, and a few days later the soles began to exfoliate. His elbows, knees and shoulders soon became involved. Since then the course has been progressive. The face and scalp became involved later. He is subject to bronchitis each winter. Tonsillectomy was performed two years ago. There is no familial history of cutaneous lesions. His mother states that the neck has cleared, the face has improved and the soles are thinner. He tires easily and has a poor appetite.

There are large, well defined, reddish, slightly infiltrated plaques covered with a fine adherent white scale. The folds of the skin seem exaggerated. These plaques are symmetrically located on the shoulders, elbows, extensor surfaces of the forearms, buttocks, knees and ankles. There is a plaque over the lumbar portion of the spine and the sternum. The axillas are involved, with the exception of the center. Similar but less striking changes are found on the eyelids and the perioral area, about the nasal orifices and on the ears. The scalp is diffusely involved. The hands are diffusely involved, with the exception of an area on the back of each hand and small areas on the backs of the fingers. The palms, and to a less extent the soles, are thickened and scaly.

The blood picture was normal. The usual determinations of blood chemistry revealed normal values.

The finger nails and toe nails were thickened but are better now.

Histologic examination of a section taken from the wrist showed pronounced hyperkeratosis with parakeratosis and moderate acanthosis. There was edema of the rete mucosa in the lower layers, most evident over the papillae, where a few microvesicles were seen. There was a slight round cell infiltrate about the capillary vessels.

Studies of the vitamin A content of the blood showed 86.6 mg. of carotene per hundred cubic centimeters of plasma (normal 50 to 100); the vitamin A level was 11.1 mg. (normal 30 to 40).

DISCUSSION

Dr. John F. Madden, St. Paul: I hesitate to disagree with the diagnosis, but I was under the impression that this eruption is probably psoriasis. I think

the lack of subungual keratosis and the lack of lesions on the face and scalp are much against a diagnosis of pityriasis rubra pilaris. I think the microscopic section is in keeping with a diagnosis of psoriasis.

DR. LOUIS A. BRUNSTING, Rochester, Minn.: Pityriasis rubra pilaris among children is apt to present a picture that varies from the classic description in the textbooks; for example, the keratotic plugging of the follicles of the terminal phalanges may or may not be present. In this case there is a seborrheic cast to the face, especially in the involvement of the eyelids, the nasolabial folds and the angles of the mouth, which is suggestive of a nutritional disturbance. It might be a good idea to fortify a high caloric diet with supplementary vitamins, especially of the B group, as well as to give large doses of vitamin A.

I have not been impressed by the accuracy of the method of determining the level of vitamin A in the blood. The dosage of vitamin A is empiric and to give large amounts by mouth, say 200,000 to 300,000 U. S. P. units per day, is probably wasteful. The parenteral method of giving 20,000 to 50,000 U. S. P. units intramuscularly in oil two or three times a week is more economical; absorption is slower, and the therapeutic results seem to be more effective.

DR. S. ROTHMAN (by invitation): In line with what Dr. Brunsting said about pityriasis rubra pilaris in children, Frazier and his colleagues in their latest publication emphasized that in Chinese children with pure vitamin A deficiency there is no follicular keratosis but a rather diffuse hyperkeratosis (ARCH. DERMAT. & SYPH. **48**:1 [July] 1943). Follicular hyperkeratosis after adolescence is not specific for vitamin A deficiency. In all experimental B factor deficiencies follicular hyperkeratoses have been reported. Did this child receive vitamin A? Some of the lesions seem to heal with depigmentation.

DR. M. H. EBERT: There are healing lesions, and the face is better.

DR. THEODORE CORNBLEET: I think this child has pityriasis rubra pilaris. The lesions early did not look like those of psoriasis. There were numerous follicular horny cones with little or no scaling. Auspitz' sign could not be elicited on the patches, and the scales were mealy and tenacious. The thick diffuse keratosis of the palms and soles is in favor of Devergie's disease and against psoriasis. Nor do the more recent lesions seem to me characteristic of psoriasis, though I see a resemblance. The vitamin A content of this boy's blood was 11.1 micrograms, which is considererably below what is considered the lower level of normal. There is a real vitamin A deficiency present, in spite of the relative sufficiency of carotene. This would seem to point to some difficulty in conversion, probably in the liver. I feel that vitamin A and carotene levels of the blood can be relied on to indicate the availability, though utility and requirements must be gaged otherwise. My colleagues and I have found that the vitamin A levels of our patients can be duplicated in determinations carried out daily for as long as two weeks. The patient under discussion received until recently relatively small doses of vitamin A. Dr. Ebert kindly permitted me to study this boy in my laboratory. I was interested not only in his metabolism of vitamin A but in the influence of vitamin E, or the tocopherols, on vitamin A. Vitamin E is an antioxidant and probably serves the body as such. It may tend to conserve vitamin A, which is easily oxidized and destroyed. Work at different places is now being done on the relationship between these two factors. There appears to be some connection between them, but its character is as yet unknown. I believe this patient showed a limited improvement while his only treatment was vitamin E. He received 120 mg. of mixed tocopherols daily. The blood level of vitamin A was raised but little after three weeks of this regimen.

Dr. Brunsting has found that parenteral injection is more effective therapeutically. This is interesting, because experiments on animals and on human subjects have shown that vitamin A in oily solution given by the oral route is far better absorbed than when given by the parenteral route. This was seen by the growth response and by the vitamin A stores in the livers of rats deficient in vitamin A. Carotene given parenterally fails to produce storage of vitamin A in the liver at all. However, vitamin A in an aqueous colloidal preparation or in prophylene glycol given by injection is as effective as vitamin A given by mouth. This in no way disputes Dr. Brunsting's assertion that in treatment of Devergie's and Darier's diseases the same dose of vitamin A when injected is more effective than when taken by mouth. In both diseases behavior to vitamin A is altered and the response is different than that of normal persons or of persons with other diseases.

Boeck's Sarcoid in an Old Scar. Presented by DR. M. H. EBERT.

A. J., a Negro woman aged 32, presents lesions in the brows, upper eyelids and bridge of the nose. She was injured in an automobile accident thirteen years ago. A deep cut, 2 inches (5 cm.) long, extending through the right brow to the forehead was sutured. A new growth developed under the scar in May 1943. This growth was removed surgically at the Cook County Hospital in June. As soon as it healed, the nodules now present began to appear. The lesions are not painful. There is no history of tuberculosis in the family.

At present there is a group of pea-sized nodules in the loose areolar tissue above the left eyelid extending to the outer canthus. There is some atrophy of the overlying skin. Similar cutaneous nodules extend along the right brow, involving the base of the scar. There is a nodular infiltrate over the bridge of the nose.

The Kahn reaction on the blood serum was negative. There were no significant changes in the blood picture. Culture of blood was negative for pathogens. The blood chemistry was normal. The von Pirquet test with old tuberculin in a dilution of 1:1,000 elicited a negative reaction.

The roentgenographic examination showed no osseous changes in the skull or in the hands; the first phalanx of the right second toe showed an area of decreased density. There was moderate increase of right hilar markings and the peripheral pulmonary fields were clear.

The histologic examination of the section removed showed a typical sarcoid structure, i. e., nests of epithelioid cells with a few lymphocytes.

Besnier-Boeck Sarcoid. Presented by DR. M. H. EBERT and (by invitation) DR. M. OTSUKA.

S. W., a Negro aged 54, presents lesions on the face, back and both arms. The first lesion was observed on the left cheek nine years ago, and the others have appeared gradually. He works in a laundry. He feels well and has a good appetite. His present weight is 130 pounds (59 Kg.); his best weight is 137 pounds (62.1 Kg.). There is no history of tuberculosis in his

family or among his associates. He is unmarried. He contracted gonorrhea thirty years ago, but he says that he has not had syphilis.

The patient is of medium size but is well developed and appears to be in good health. A raised irregularly circinate lesion made up of pea-sized brownish nodules extends around each eye. It starts in the median portion of the eyebrow and extends up on to the forehead, out onto the temple, down the cheek, beneath the zygoma and then up to the inner canthus of the eye. Within this circle there are several discrete nodules on the eyelids and beneath each eye. The lobe of the right ear is irregularly infiltrated. Over the right triceps muscle there is an oval lesion with axes of 2½ and 5 inches (6.3 and 12.7 cm.) respectively. The border is made up of raised brownish nodules, involving the entire corium. The lower half of the lesion is diffusely infiltrated with a nodular infiltrate extending to the subcutaneous tissue. The upper half is hyperpigmented and atrophic. A similar lesion measuring 2 by 3 inches (5 by 7.5 cm.) involves the right posterior portion of the thorax. There are several navy bean–sized subcutaneous firm tumors over the left triceps muscle. There is generalized adenopathy. No lesions are found in the mouth. The spleen is not palpable, and the fingers and toes seem normal in contour.

The Kahn reaction of the blood serum was negative. His blood pressure was 112 systolic and 74 diastolic. The blood count showed: hemoglobin content, 79 per cent; erythrocytes, 4,000,000, and leukocytes 5,500, with a normal differential count. The von Pirquet test elicited a negative reaction. The urine and blood chemistry were normal. The roentgenographic examination of the chest showed increased hilar and bronchovascular markings. Various areas of clearly demarcated decreased density were seen in the roentgenogram of the distal phalanges of the fingers and toes.

Histologic examination of the section removed from the right arm showed typical sarcoid structure, i. e., nest of epithelial cells with some surrounding lymphocytes.

The patient has received four weekly intramuscular injections of ethyl chaulmoograte.

Sarcoidosis. Presented by Dr. David V. Omens and (by invitation) by Dr. Harold D. Omens and Dr. M. Otsuka.

M. R., a Negress aged 58, by occupation a domestic, presents a generalized eruption composed of papules, variable-sized nodules and infiltrated plaques involving the face, neck and extremities as well as the eyelids, nose and lips. The eruption started in the early part of 1941 and gradually progressed to the wide dissemination which she presents today.

The Wassermann and Kahn reactions were negative. The Mantoux test (1:1,000) elicited a strongly positive reaction. Roentgenographic examination revealed rarefaction of the phalanges of the hands, but the roentgenograms of the chest were inconclusive.

Histologic examination showed a tuberculoid structure. There were nests or groups of epithelioid cells with some giant cells and with lymphoid cells in the outer zone.

DISCUSSION OF CASES OF SARCOID

Dr. C. W. Finnerud: I should like to ask whether leprosy had been ruled out in the case of the man. Unless special search was made for the lepra bacillus, in spit of the observations reported, I should be inclined to leave the diagnosis unsettled.

Dr. Maurice Oppenheim (by invitation): The most interesting of the 3 cases is that of the woman with the sarcoid in an old scar. It proves my contention, which I have often expressed, that sarcoid is a typical reaction of the skin to various small and powder-like foreign bodies. These corpuscles can be dead or they can be slightly virulent tubercle, leprosy or other bacteria or Treponema pallidum or other micro-organisms, and one finds then the so-called sarcoid reactions in these diseases; or they can be any other organic or inorganic pulverized foreign bodies (Lupoidänhliche Hauterkrankungen nach subcutanen Injektions: *Dermat. Wchnschr.* **57**:1289, 1913). It is known from the experiments of Dr. Volk, who died several months ago in Mexico, that typical sarcoid-like lesions can be produced by injections of india ink, a suspension of soot, in the skin of animals. I presented patients that showed sarcoid-like lesions after injections of mercuric salicylate, morphine and suspensions of iron and arsenic. The tendency to sarcoid formation is a characteristic of certain persons.

Linear Scleroderma, Following the Course of Nerves, with Muscular Atrophy. Presented (by invitation) by Dr. Stephen Rothman and Dr. A. B. Henningsen.

P. H., a girl aged 4 years and 8 months, whose family history is not significant, has had an eruption on the left arm and left leg for two years. Two and one-half years ago she fell down ten steps when riding a bicycle. A swelling of the left hand appeared two days later and persisted for two weeks. Immediately after the disappearance of the swelling, hard pigmented and depigmented lesions appeared on the left lower extremity.

On Aug. 31, 1943 an ulnar deviation of the left hand was found and treated by a splint. There is a band-shaped zone of induration and mingled pigmentation and depigmentation and telangiectases extending over the dorsal aspect of the middle and proximal phalanges of the left fourth finger, dorsal aspect of the third and fourth left metacarpal bones and dorsum of the wrist and along the ulnar aspect of the left forearm to the elbow. The skin of the extensor aspect of the proximal interphalangeal joint of the left third finger is erythematous. Dilated veins are seen over the affected areas. The volume of the left hand is smaller than that of the right. There are areas of depigmentation, induration and atrophy on the dorsolateral aspect of the left foot from the fifth toe to the ankle and on the left calf. There is a brownish discoloration of the distal third of the left fourth and fifth finger nails and the left first toe nail.

The neurologic examination revealed slight weakness in flexion of the left fourth and fifth fingers and gross sensory loss over the left ulnar distribution. The deep and the superficial reflexes were normal. The skin felt cooler over the affected areas than elsewhere. There was no loss of power in the left foot or leg. The neurologic diagnosis was "traumatic scleromyositis" in the left ulnar distribution and in the first and second left sacral distribution, the latter distribution being incomplete.

The measurements were as follows: Upper forearm, right 14.75 cm. and left 13 cm.; wrist, right 10 cm. and left 9.5 cm.; calf, right 20.5 cm. and left 19.0 cm., and midphalanx of fourth finger, right 4 cm., left 3.5 cm. The fourth finger measured 6 cm. in length on the right hand and 5.5 cm. on the left.

The Wassermann and Kahn reactions of the blood serum were negative. The blood count and differential

distribution were normal. Determinations of blood chemistry showed 9 mg. of calcium (normal range 9 to 11 mg.) and 4.8 mg. of phosphorus (normal range 2.5 to 4 mg.) per hundred cubic centimeters.

The roentgenologic examination showed the left elbow and the thoracolumbosacral portion of the spine to be normal, and there was no evidence of lesions in the bones of the left hand, forearm, leg or foot.

DISCUSSION

DR. RUBEN NOMLAND, Iowa City: When linear scleroderma is observed in a child of 4, one must be careful in giving a prognosis, because in all probability that child's legs or arms or both will fail to grow normally both in length and in thickness and undoubtedly it will need orthopedic care in the future. In the past several years there have been 2 or 3 patients in the orthopedic department of the University Hospital with primarily linear scleroderma that had interfered with growth.

DR. S. ROTHMAN (by invitation): This child is under orthopedic care. She is wearing a splint on her arm. Dr. Stokes recommended injections of a French preparation of bismuth hydroxide in oil for linear scleroderma in children (ARCH. DERMAT. & SYPH. **44**:125 [July] 1941 and **45**:1217 [June] 1942). I should like to ask whether any one has had experience with this treatment.

DR. D. V. OMENS: I should like to ask Dr. Brunsting if he has had any experience at the Mayo Clinic with sympathectomy in cases in which linear scleroderma interfered with growth.

DR. BRUNSTING: No.

A Case for Diagnosis (Psoriasis? Psoriasiform Eczematides?). Presented by DR. HERBERT RATTNER and DR. MAURICE DORNE.

Mrs. B. S., a white woman aged 41, presents an eruption on her knees which first appeared fourteen years ago and persisted for ten years, healed spontaneously and then recurred two years later after an abrasion to the knees. She has had lesions on the elbows for the past three years. These lesions remained stationary until five weeks ago, when she applied a new salve. Two days later a generalized itching eruption appeared, and the lesions on the knees spread to cover larger areas.

There is a diffuse follicular erythematous papular eruption on the nape of the neck and on the back, shoulder and chest. There is an erythematous papular scaly patch about 2 inches (5 cm.) long and ½ inch (1 cm.) wide on the right elbow. Two similar patches of the size of a dime are present on the left elbow, and there are two split pea–sized patches on the upper border of the umbilicus. There is a diffuse erythema on the pubes (this has been present for ten years). There is a palm-sized erythematous patch, covered except at the border with slightly adherent scales, on each knee. Similar patches about the size of a silver quarter are present on the upper half of the tibial surface of each leg.

Histologic examination showed a thick loose parakeratotic scale covered in part by a crust. The epidermis showed acanthosis and lengthening of the rete pegs down to narrow tips, almost complete disappearance of the suprapapillary rete and edema of the entire epidermis. The papillae were elongated and vascular, and the entire upper part of the corium was densely packed by a round cell infiltrate, which also invaded the epidermis and scale.

DISCUSSION

DR. C. W. FINNERUD: Psoriasis can do rather unusual things. One even sees pustular psoriasis at times with lesions partially of a moist type. I did not see the sections, but my impression is that the disease is an atypical psoriasis. I felt I could rule out neurodermatitis.

DR. F. W. LYNCH, St. Paul: Both the appearance of the eruption and the history given by the patient suggest that much of the present eruption is a result of an inflammatory reaction to her local applications. It is my impression that the underlying condition is a chronic form of neurodermatitis rather than a type of psoriasis.

DR. E. A. OLIVER: This patient was in our clinic last week. The lesions on the knees have a slightly different appearance than they did at that time. Then they looked somewhat like psoriasis, yet there was more oozing than one sees in psoriasis, and instead of scales capping the lesions there was a scaling crust formation. She has lesions suggesting lichen simplex chronicus on the extensor aspects of the forearms. I felt that this was a case of psoriasiform eczematide as described by Darier.

DR. F. E. SENEAR: This case is much like the illustrations of parakeratosis psoriasiformis shown in the French *Pratique* and included under the group of streptococcic dermatoses. I have seen a few patients with an eruption of this type. Occasionally they have had lesions of lichen simplex chronicus type elsewhere. Proceeding on the theory that they may be of streptococcic origin I have treated them with bactericidal agents and have occasionally had a good response. On the other hand, when they have responded there has been a recurrence. I do not feel that streptococci are responsible for all eruptions of this type. I think the appearance of the small lesions on the legs should make one think of streptococcus infection as a possible etiologic factor.

DR. HERBERT RATTNER: The discussion has brought out the reason for presenting the case. When I first saw the patient, I, too, made a diagnosis of parakeratosis psoriasiformis. I was introduced to this disease some six or seven years ago by Dr. Senear at a staff meeting of the University of Illinois and have since seen several cases. The lesions usually respond to treatment with ammoniated mercury. In this case treatment was with sulfathiazole salve, which produced the irritation. Several of my colleagues questioned that the disease is an entity. In looking through the English references available to me, I found that Stokes considered parakeratosis psoriasiformis to be a fungous infection the same as Ravaut's levurines which attacks flexor surfaces. The author of the reference in the French literature, on the other hand, considered it to be a streptococcide involving extensor surfaces.

Erythema Annulare Centrifugum. Presented by DR. DAVID V. OMENS and (by invitation) DR. HAROLD D. OMENS.

H. T., a Jew aged 49, by occupation a jeweler, presents an eruption of five years' duration. The eruption started as annular lesions on the left thigh, about the size of a palm, which slowly broke up to form gyrations. At the present time there are several large gyrate lesions on the outer aspect of the left thigh. There are no subjective symptoms. The patient has been under observation for one year.

DISCUSSION

DR. S. ROTHMAN (by invitation): There is scaling on the edges, and therefore the lesion may be tinea circinata. In the cases of patients with erythema annulare centrifugum under my observation, I never was able to trace the causative agent (toxic? infectious?), and I always observed a strikingly sudden disappearance without demonstrable reason.

DR. DAVID V. OMEN: I have had this patient under observation for about a year, and during that time repeated examinations have been made for fungi. He has used ointment of benzoic and salicylic acids and other ointments but without success.

Kaposi's Sarcoma Associated with a Malignant Tumor of the Colon. Presented by DR. M. H. EBERT and (by invitation) DR. M. OTSUKA.

E. S., a white man aged 70, born in Sweden, presents lesions on his toes and the dorsa of his feet. He entered Cook County Hospital five months ago. A preliminary colostomy was done at that time for a tumor of the rectosigmoid region. The tumor is to be removed later. About three months ago, while in the hospital, he noticed some tenderness of his toes, and on examination he found several brown spots.

At present there are several bluish red slightly raised infiltrated plaques on the medial and lateral sides of the right great toe. These vary from the size of a split pea to that of the little finger nail. Two similar plaques are located on the proximal articulation of the right great toe and two on the dorsum of the right foot. A lesion of the same type, 1 cm. in diameter, occupies the plantar surface of the left great toe, and a small one on the tip of the left third toe extends beneath the toe nail. Two split pea–sized lesions on the dorsum of the left foot seem to be involuting. Since they were first discovered the lesions have not progressed, and some seem to be undergoing involution.

The histologic examination of a section taken from a small lesion on the dorsum of the left foot showed in the corium well defined areas made up of newly formed capillaries, some of considerable size. In addition, there are fibroblasts, histiocytes and cells of adventitial origin. There were a few collections of lymphoid cells. A stain for iron demonstrated iron pigment between the cellular elements.

Leprosy (Lepromatous Type). Presented by DR. HERBERT RATTNER and MAURICE DORNE.

N. B., a man aged 20, came to the United States from Italy in 1932. Up to the age of 3 years he lived with foster parents. He was breast fed by the foster mother. The foster father was believed to have a numbness and lameness in the right leg. At the age of 6 years the patient began to have nosebleeds, which became progressively more frequent. It was also noted at this time that wounds on the elbows and knees would require several months to heal. Medical advice was not sought. In 1937 he was found to have a positive Wassermann reaction. An intravenous injection was followed by a rise in temperature to 105 F. and he was hospitalized. There was no exfoliative dermatitis. After this he received about forty-eight intramuscular injections. He then discontinued treatment.

In March 1942, a positive Wassermann reaction was again obtained at an army induction center. He then received a series of intravenous and intramuscular injections for a period of about six months. An examination of the spinal fluid at this time showed normal conditions. In December 1942 he noticed a rash on his chin which was diagnosed as "acne." In June 1943, a biopsy was performed and a diagnosis of leprosy was made at the Mayo Clinic.

The eruption consists of split pea–sized skin-colored to slightly brownish infiltrated nodules on the nose, face and lobes of the ears and similar but slightly darker lesions on the arms and back. He has a moderate generalized adenopathy. There is an irregular partial alopecia of the eyebrows. There is some atrophy of the interosseus muscles of both hands and a mild clawing of the fingers. The ulnar nerves are enlarged, and there is some anesthesia of the outer aspect of the hands (ulnar nerve distribution).

The Kahn reaction of the blood was reported as doubtful, and a Kahn verification test was reported as eliciting "a general biologic reaction."

The chemical examination of the blood showed 30 mg. of nonprotein nitrogen, 1.6 mg. of creatinine, and 83 mg. of dextrose per hundred cubic centimeters.

A slide was presented.

DISCUSSION

DR. S. ROTHMAN (by invitation): As we looked at the patient, I was much interested in what Dr. Michelson said about similar features of leprosy and sarcoid. Scandinavian authors have suggested that sarcoidosis be treated with chaulmoogra oil. I should like to ask whether anybody has had experience with the use of chaulmoogra preparations in the therapy of sarcoidosis.

DR. OLIVER S. ORMSBY: I presented a patient here about a year ago who for several years before had had a severe eruption of sarcoid. For nine months previous to being shown here she had injections of ethyl chaulmoograte, and the sarcoid was almost cleared. Then she was given a rest for several months, and the sarcoid recurred severely. Then the treatment was resumed. She has had about ten injections in the present series, and the improvement is remarkable. This preparation is given by intramuscular injection at weekly intervals in doses of from 3 to 9 cc. and is the best treatment I have seen for sarcoid.

Keratosis Follicularis. Presented by DR. THEODORE CORNBLEET and (by invitation) DR. C. H. STUBENRAUCH.

C. T., a man aged 32, at the age of 5 years had a palm-sized patch of hyperkeratotic crusted papules on the left temple. The lesion persisted for two years and then gradually spread to involve the whole scalp. Five years later new lesions appeared, first in the interscapular region and then behind the ears and on the neck, nasolabial folds, chin and sternal region. The eruption shows regular exacerbations during the warm months with pronounced remission in winter. Itching has been moderate most of the time. Occasionally superficial ulceration develops in the involved areas. The patient's mother and two of his three sisters have a similar disease of the skin. A brother, aged 29, shows no evidence of the disease.

The scalp, postauricular regions, nasolabial folds, chin, neck, chest, interscapular areas and groins are involved with an eruption consisting of firm, red hyperkeratotic papules covered with thick greasy gray crusts. Scattered over the lateral surfaces of the chest and abdominal wall are numerous discrete pinhead-sized light brown follicular hyperkeratotic papules.

A Case for Diagnosis (Vitamin A Deficiency?). Presented by DR. M. H. EBERT and (by invitation) DR. M. OTSUKA.

J. B., a Negro aged 45, presents lesions of the skin which are practically universal. Only the upper part

of the cheeks, the nose and the genitalia are spared. He was employed as a dishwasher. About five months ago he noticed itching of the arms and trunk. About three months ago the skin became rough in these areas, and two months ago his palms and soles became thickened and fissured. He has never been ill. He says that he has never had syphilis but that he had gonorrhea twenty-five years ago. There is no familial history of cutaneous disease. His only son is in the armed services overseas. He has had an excellent appetite and pleanty to eat. He states that he has difficulty in seeing in dim light.

The patient is a medium-sized, well developed man who does not appear ill. The entire trunk, neck and upper portions of the arms are covered with pinhead-sized acuminate keratotic papules which apparently involve all the follicular openings. They feel like a nutmeg grater and when scratched appear grayish. On the forearms, sacral region, thighs and legs these hard keratotic papules are larger and so close together that they give the skin a shagreen effect. In these areas there is a definite infiltration of the dermis and decided hyperpigmentation. The backs of the hands are greatly thickened, and the skin lies in transverse folds. Similar changes have occurred on the elbows and knees. Follicular plugs are seen in these areas. The lower third of each leg and the dorsa of the feet are noticeably thickened and deeply pigmented. There is a diffuse hyperkeratosis of the palms, the flexor surfaces of the fingers, the soles and the plantar surfaces of the toes. There is a diffuse grayish keratotic scaling of the scalp, less evident on the ears. The beard, eyelashes and eyebrows are normal. The pubic hair is scanty, and the axillary hair is absent. There is a general lymphadenopathy. The spleen and liver are not palpable.

The carotene level of the blood was 45 micrograms per hundred cubic centimeters, the lower limit of normal. The vitamin A content of his blood was 16.8 micrograms per hundred cubic centimeters, which is much reduced, 30 to 40 micrograms being normal. The blood chemistry was normal in other respects. The hippuric acid and cephalin tests for hepatic function showed early damage of the liver. The Kahn reaction of the blood serum was negative. Urinalysis and a blood count gave normal values and a roentgenogram of the chest revealed nothing abnormal. His blood pressure was 102 systolic and 68 diastolic.

Histologic examination showed the principal changes in the epidermis. There were numerous papillomatous processes which were covered with a distinctly hyperkeratotic and somewhat lamellated stratum corneum, and the deep furrows between them were filled with the same material. Flattened nuclei were found in the stratum corneum in only one area. Irregular branched acanthotic rete pegs extended downward into the corium. In places the epidermis was reduced to three or four rows of cells over the tips of the elongated papillae. In other places the rete cells over the tips of the papillae were edematous. There was no degeneration of the basal layer. A slight perivascular infiltrate was seen in the reticular layer. The sweat glands appeared normal.

DISCUSSION

DR. EDWARD A. OLIVER: This case appealed to me more as an instance of pityriasis rubra pilaris than did that of the boy presented by Dr. Ebert today. The patient has diffuse scaling in the scalp and on the face, hyperkeratosis on the palms and soles and generalized roughening of the skin. It seems to me to be a case of pityriasis rubra pilaris.

DR. LOUIS A. BRUNSTING, Rochester, Minn.: It is a peculiarity of Darier's disease to improve spontaneously during the winter months, and that has been the experience of the patient who is presented here. I feel that this man has a classical pityriasis rubra pilaris which has become universal.

In the treatment of this disease the use of vitamin A must be augmented by other factors which have been a part of the program of treatment for many years in the past, namely, sweats induced with pilocarpine coupled with some from of hyperthermy, either mechanical or induced by the intravenous injection of typoid vaccine.

DR. THEODORE CORNBLEET: Our patient has visited the clinic several times during the last seven or eight years. This is the first time that he has shown any improvement from treatment. The vitamin A level of the blood lies within the normal range, and this has been verified several times. On the basis of intensive study of this man's case, I believe that Darier's disease is possibly not caused by a simple deficiency of vitamin A. Nor is there a lack of carotene. This is not to say that vitamin A is not concerned in the disease; the therapeutic tests prove that it is. Future work, no doubt, will show why persons with the disease require huge amounts of vitamin A for their welfare.

Studies on animals have shown that large quantities of vitamin A when ingested are quantitatively absorbed. Practically none goes through with the feces. I am inclined to believe this is true for such persons as those with Devergie's disease, in whom deficiencies of vitamin A develop on normal diets.

Localized Amyloidosis Cutis. Presented by DR. JAMES H. MITCHELL and (by invitation) DR. FRANCIS W. HETREED.

B. I., a man aged 70, first noticed the eruption on his left leg about thirty-five years ago; it commenced below the internal malleolus and ascended until at present it involves the middle and lower third of the leg. Mild itching has been his only subjective complaint. Varicosities are present on both lower extremities. There has been no history of petechial or ecchymotic areas occurring on the lower extremities.

On the middle and lower thirds of the left leg are grouped salmon pink hyperkeratotic papules. Some of the papules with the keratotic layer removed show a flat waxy surface.

An injection of gentian violet (methylrosaniline) was made experimentally into one area five days ago (because the congo red solution had been misplaced). The amyloid deposits took up the violet dye.

Histologic examination showed amyloid deposits in the corium.

DISCUSSION

DR. RUBEN NOMLAND, Iowa City: Microscopically this is a case of typical amyloidosis. There are two interesting features clinically. First, the involvement is unilateral, and, second, it occurs in an area of varicose veins. The latter fact has been emphasized once previously. Another interesting feature is that through an error instead of congo red gentian violet was injected, and, as I understand, there was selected staining of the amyloid nodules by the gentian violet.

Exudative Discoid and Lichenoid Chronic Dermatosis. Presented by DR. F. E. SENEAR and DR. MINNIE O. PERLSTEIN.

C. G., a Jew aged 50, born in Russia, has had the present eruption since November 1942. In 1928 he had

generalized lichen planus which responded to therapy with a bismuth preparation. In 1936 he had an acute urticaria.

The present eruption began on the wrists and spread to involve the shoulders, anterior and posterior axillary lines, sides of the trunk, buttocks and upper and lower extremities, especially the extensor surfaces. The forehead and genital areas have been itching severely during the past week. At no time have lesions been present in the mouth or on the palms or soles.

The patient is a highly emotional man whose principal complaint is severe intractable itching, especially at night, associated at times with generalized chills which are severe enough to interfere with sleep.

This patient has been under dermatologic care since the onset of the eruption, in November 1942, with neither relief nor alleviation of the symptoms. During the four weeks that he has been under our observation the outstanding feature of the eruption has been the rapid changes in the appearance of the dermatosis. At the onset it was urticarial and transient. These urticarial lesions still appear in showers from time to time. The urticarial lesions are followed by match head–sized erythematous papules which remain as distinct lichenoid lesions or form coin-sized violaceous oval or round flat plaques occurring in linear configuration especially on the sides of the trunk and over the flexor surfaces of the forearms. At times these patches are exudative or crusted, but at no time have vesicles been seen. The eruption at times has been suggestive of dermatitis herpetiformis, and at other times, of a lymphoblastoma or of the premycotic stage of mycosis fungoides.

The eruption has been unaffected by any therapy used to date, which has included local application of antipruritics and of starch, oatmeal and tar baths, sulfapyridine orally, solution of potassium arsenite and autohemotherapy. He has been hospitalized for short periods, without effect.

Except for the dermatosis and a generalized shotty lymphadenopathy, the physical examination revealed essentially normal conditions. Biopsy of one of these glands at the Cook County Hospital showed neither Hodgkin's disease nor leukemia.

The blood chemistry was essentially normal. Repeated blood counts showed no evidence of a primary disease of the blood; however, the leukocyte count varied from 8,000 to 11,500, of which between 8 and 10 per cent were eosinophils.

The histologic examination of a section from a plaque on the back was reported by Dr. M. R. Caro as follows: The epidermis showed irregular acanthosis and islands of intercellular and intracellular edema which did not reach the point of vesicle formation. The scale was thin and had small areas of parakeratosis. The upper part of the corium was edematous, and there were circumscribed mantles of cellular infiltrate about the superficial blood vessels, composed of lymphocytes, histiocytes and occasional chromatophores. The papillae were edematous, and they contained a round cell infiltrate which in places invaded the epidermis.

DISCUSSION

Dr. John F. Madden, St. Paul: I think that this is a case either of dermatitis herpetiformis or of a closely related entity. I shall be interested to know the effect of sulfapyridine on this eruption.

Dr. C. W. Laymon, Minneapolis: There seems to be a great deal of confusion about the disease that Sulzberger described. This man has bluish white patches in the mouth, which made one consider the diagnosis of lichen planus.

Dr. S. Rothman (by invitation): We had this man under observation for several weeks in the Frank Merritt Billings Hospital. We made a diagnosis of exudative neurodermatitis. We suspected a lymphoblastoma, but no internal disease was found. There seemed to be a rather strong psychic factor present. He was compelled to live with his father-in-law, whom he detested. As a matter of fact, this man's eruption cleared just as a neurodermatitis clears with hospitalization, and he left the hospital completely cured. So if this is Sulzberger-Garbe's disease, it is interesting to state that apparently in this case it developed from banal neurodermatitis. He has had no discoid lesions during the observation period in our hospital.

Dr. S. W. Becker: These remarks are interesting because I have a patient who had what I thought was a typical Sulzberger-Garbe syndrome. When the eruption first started he had a few lichenoid lesions, and a diagnosis of lichen planus had been made elsewhere. A second dermatologist called it dermatitis herpetiformis, and a third called it neurodermatitis; so it is a condition that is similar in different stages to the various diseases which have been mentioned.

Dr. H. E. Michelson, Minneapolis: There is a disease which is called neurodermatitis, but from the history Dr. Rothman gives this should be called a psychodermatitis. I suggest a psychiatric examination.

Dr. S. Rothman (by invitation): We had psychiatric consultation, but the psychiatrist said he could not help the situation.

Dr. F. E. Senear: We thought of all the things that have been mentioned. Having seen the patient previously with lichen planus, we wanted to rule that out. We thought that there was a suggestion of Dühring's disease, and we gave him sulfapyridine and arsenic; but neither had the slightest influence on the eruption, and this failure of response did not support the diagnosis of dermatitis herpetiformis. We had a similar experience with a patient who we felt had the definite lichenoid exudative type of dermatitis that Sulzberger described. He finally improved definitely in the hospital, but he was far from well; some one finally suggested to him the idea of going to New Mexico or Arizona. He did so, and he recovered quickly. He came back to Chicago and speedily had a recurrence, and then we convinced him that he should go back to the Southwest and stay there. After watching this patient for some time, we finally felt that his disease most closely resembled the Sulzberger type of disease.

Dr. Minnie O. Perlstein: We thought this patient's disease fitted in with the criteria which were set down for a diagnosis of Sulzberger's disease. Sulzberger outlined four phases for the disease, and this patient has gone through these four phases. It seems that the various dermatologists in Chicago have seen him in one or the other of these four phases, which accounts for the varied diagnoses made. The first phase is the exudative phase, called an exudative dermatitis. The second is the lichenoid phase. The third is the urticarial phase, which this patient now has, great showers of urticarial lesions being present. The fourth phase is like the premycotic stage of mycosis fungoides. Some authorities suggest that it might be lymphoblastoma. At times this patient has had clinical dermatitis herpetiformis and has been treated with solution of potassium arsenite and sulfapyridine. There was, however, no improvement; in fact, he says the treatment made him worse. He has been given autohemotherapy, without any effect. His main complaint is intractable

itching which apparently is not relieved by any treatment given to date. After observing this patient for some months and studying the cyclic changes in the clinical picture, we have decided that his disease is the same as that of the group of patients reported on by Sulzberger with the diagnosis of exudative discoid and lichenoid chronic dermatitis.

DR. F. E. SENEAR: One of the characteristics of this disease is the involvement of the forehead and of the external genitalia. During the time that we have watched the patient he had had involvement of neither site until we saw him during the past week, when he was showing definite lesions on the forehead and for the first time was having extensive itching of the external genitalia.

Macular Atrophy. Presented (by invitation) by DR. MAURICE OPPENHEIM and DR. D. COHEN.

J. G., a white woman aged 25, presents an eruption which has been present for three years. There are no subjective symptoms. The lesions are mainly on the back over both deltoid regions, extending down to the middle of the arms. The lesions vary in size from that of a hemp seed to that of a finger nail. The color varies from that of normal skin to light red and purplish red. The contours are sharp and the configuration round. The majority of the papules are level with the skin. The surfaces are partially smooth, though some are wrinkled. No scales or crusts are seen. To the palpating finger a hernia-like hole in the skin is felt. Some small lesions are bluish and do not give this impression. Some of the papules are of a rose color and are hard, like keloids. A few of the lesions show ring forms with pale centers. The lower extremities and abdomen as well as the mucous membranes and scalp are free.

The past history is essentially noncontributory except for a thyroidectomy in 1929.

The results of a urinalysis and a blood count were normal. The Wassermann and Kahn reactions on the blood serum were negative.

Histologic examination revealed normal epidermis with vacuolation of the basal cell layer. The epithelial borderline showed normal connective tissue fibers. The collagen was highly degenerated; the fibers were short and broken, and the tissue was poor in cells. There was stratum adiposum in the upper layer of the degenerated cutis. Van Gieson's stain showed the subepithelial borderline to be normally eosinophilic. The broken, short, irregular connective tissue bundles were stained yellowish brown. The elastic fibers in the upper layers were almost absent and in the deeper layers diminished and highly degenerated.

DISCUSSION

DR. HARRY R. FOERSTER, Milwaukee: This is an interesting case because the lesions are so typical and characteristic. The only comment I have to make concerns a patient with macular atrophy whom Dr. O. H. Foerster, Dr. L. M. Wieder and I presented before this society some years ago (ARCH. DERMAT. & SYPH., **34**:725 (Oct.) 1936). He had distinctly inflammatory and infiltrated macules as well as atrophic macules and ballooning on pressure. The patient was an adolescent boy with the clinical features of Fröhlich's syndrome. We reported the case as an instance of anetoderma erythematodes (Jadassohn), and I expressed the belief that the lesions were a symptom of endocrine disease, possibly involving the pituitary gland. The patient was later seen by Dr. Sevringhaus, who agreed with the diagnosis of Fröhlich's syndrome and recommended thyroid and pituitary medication, which was carried out by the family physician. I saw the boy a year later at which time new lesions had ceased appearing, and again several years ago, at which time he was a physically and mentally well developed and normal youth. His skin showed only the remaining atrophic scars, as observed in the patient today. I believe such cases should be viewed as of an endocrine causation and consideration should be given to endocrine therapy.

DR. MAURICE OPPENHEIM (by invitation): Anetoderma erythematodes of Jadassohn is the same as primary macular atrophy. There is a secondary type following leprosy, syphilis, tuberculosis, urticaria, von Recklinghausen's disease and others. This patient shows the three stages of lesions which I described in 1905 in the case which I presented before the German dermatological society meeting in Meran (Zur Kenntnis der Atrophia maculosa cutis, *Arch. f. Dermat. u. Syph.* **81**:127, 1906). The three stages are erythematous spots, annules and saclike, hernia-like protrusions. But this patient shows also keloid-like papules and nodules. If one feels several of these elevated lesions one finds some where the finger finds a hole in the skin and others which are hard and indurated. I believe that one has here the same conditions that one has in the cases of diffuse sclerodermatitis atrophicans as a final stage, acrofibromatosis and acroderma-like changes following the degeneration of the connective tissue fibers.

The histologic changes in this case are typical for the primary macular atrophy: a straight borderline between the epidermis and the cutis, round cell infiltrations, absence of elastic tissue, degeneration of the connective tissue fibers and fatty tissue in the higher layers of the cutis. The last causes the hernia-like protrusions with the wrinkled surface and the feeling of holes in the skin.

A Case for Diagnosis (Lupus Erythematosus? Dermatomyositis?). Presented by DR. F. W. HETREED (by invitation), DR. F. E. SENEAR, and (by invitation) DR. C. H. STUBENRAUCH.

M. N., a woman aged 51, first noticed redness of the face and forearms in May 1943. A few days later pains developed in her arms associated with generalized weakness which was most severe in the muscles of the calves and arms. She was bedridden from that time to the present, and she states that she has had fever daily, her temperature varying from 102 to 104 F. The eruption spread first to the scalp, then to the chest, forearms and dorsal surface of the fingers, to the buttocks and to the flexor surfaces of the thigh and legs. At present these areas show a superficial red scaling eruption with sharply demarcated borders. There is a tendency to linear arrangement on the backs of the fingers, with redness of the skin at the base of the nails. Itching is severe at times, especially on the chest and thighs.

The patient has been hospitalized since October 11, during which time the temperature has been normal.

The blood count showed 4,040,000 erythrocytes and 7,600 leukocytes, with 16 per cent lymphocytes, 61 per cent neutrophils, 16 per cent eosinophils and 7 per cent monocytes.

The histologic examination revealed a thin parakeratotic scale. The epidermis showed flattening of the rete pegs, a moderate degree of intracellular edema and occasional liquefaction of the basal cells. In the upper part of the corium the fibers were thickened and homogenized, and they stained poorly. The subpapillary

vessels were dilated, while those in the middle and deeper portions showed thickened walls and were surrounded by narrow mantles of round cell infiltrate, as were the sweat glands. The smooth muscle fibers present in the section showed no degenerative changes.

DISCUSSION

DR. LOUIS A. BRUSTING, Rochester: The diagnosis in this instance rests between dermatomyositis and disseminated lupus erythematosus in the subacute stage. In women at the time of the menopause or beyond, lupus erythematosus often runs a comparatively benign course and, sooner or later, changes occur in the soft skin of the neck or other folds of the body which resemble poikiloderma. There may be episodes of purpuric lesions of the hands and feet, elbows and knees and sometimes a shower of lesions resembling erythema multiforme. A characteristic feature of dermatomyositis is the heliotrope, telangiectatic discoloration of the eyelids; also there may be glistening elevated plaques on the knuckles, knees and ankles and ultimately a stiffening of the joints with deposition of calcium in the joints and in the skin. In both diseases there may be a preliminary phase of arthralgia, but in dermatomyositis there is tenderness, particularly of the long muscles of the extremities, and there is weakness out of proportion to the other aspects of the disease; for instance, the patient is unable to arise to a sitting from a prone position without assistance, and on inspection one can detect atrophy of the muscles of the shoulder girdle. When there is doubt about the diagnosis, it is advisable to perform a biopsy of the skin and muscle in the pectoral region. The microscopic picture of the skin in lupus erythematosus is more or less distinctive, whereas, in dermatomyositis it is not, being a nonspecific erythematous reaction; but in the latter disease one can detect an inflammatory reaction and parenchymatous degeneration in the muscles.

From the laboratory standpoint, in disseminated lupus erythematosus the level of the leukocytes is invariably low and the sedimentation rate of the erythrocytes is decidedly elevated, in contrast to dermatomyositis, in which these variations from normal do not usually occur; however, in dermatomyositis there is always an abnormal increase in the urinary excretion of creatine and creatinine. It is my impression that this patient presents early signs of dermatomyositis.

DR. ARTHUR C. CURTIS, Ann Arbor, Mich. (by invitation): I agree with Dr. Brunsting's diagnosis in this case. This patient presents three possibilities for the diagnosis: (1) disseminated lupus erythematosus, (2) dermatomyositis and (3) periarteritis nodosa. She has a generalized disease. She has more atrophy and weakness in the upper extremities than in the lower extremities and considerable calcification in the arteries as well as possibly some in the muscles. In many cases of periarteritis nodosa there are lesions of the skin similar to lupus erythematosus.

DR. F. E. SENEAR: This woman had some petechial hemorrhages in the distal nail folds. She picked them out. What she called "black bodies" were organized petechial hemorrhages.

DR. HERBERT RATTNER: There is an excellent review of 30 cases of disseminated lupus erythematosus in the current issue of the *Bulletin of the Johns Hopkins Hospital*, which is well worth reading.

Acrodermatitis Continua. Presented by DR. M. H. EBERT and DR. HERBERT RATTNER.

About ten years ago A. O'K., a woman aged 67, first noticed an infection starting under the left thumb nail. A dermatitis soon developed and began to spread up the thumb to the palm and index finger. At approximately the same time the eruption had a similar course on the right thumb and palm, so that at present the eruption is bilateral and symmetric. The dermatitis is sharply defined, and there is exfoliation present. The denuded area at the finger tips is somewhat shiny, and the skin has a reddened, glazed appearance. The finger tips are conical and somewhat sclerous. There have been cycles of improvement and relapses, but at no time has there been complete freedom from the dermatitis.

DISCUSSION

DR. STEPHAN EPSTEIN, Marshfield, Wis.: There are no pustules to be seen now. I should like to hear Dr. Ebert discuss the relationship between the patient's dermatitis and Andrews' bacterid. Naturally, I do not see many cases of the latter disease. It seems to me that some give exceedingly severe reactions to staphylococcus or streptococcus vaccines. If one could produce a reaction with a local exacerbation it might mean something. I had a patient, a woman with lesions on the fingers, in whom an overdose of vaccine would repeatedly produce a recurrence.

Pemphigus Vulgaris in Remission After Treatment with Acetarsone. Presented (by invitation) by DR. MAURICE OPPENHEIM.

H. P., a white man aged 49, noticed little blisters on the scalp five months ago. There was no tendency toward healing, and nine weeks later a rash appeared over the whole body and on the mucous membranes of the mouth. I saw the patient on September 12, at which time the entire body was covered with erosions and blisters, some of the size of a walnut. The trunk and extremities were equally involved. There were a few erosions and blisters in the mouth. He had fever and was very weak. He was given blood transfusions, oatmeal sponge baths, 5 per cent boric acid ointment and acetarsone. I saw him for the second time on October 12, and the condition was as it is today.

There are no blisters or erosions on the trunk and extremities, and the mouth is free from lesions. At the location of the blisters and blebs there are sharply limited, round, oval or polycyclic pigmented or bluish red areas, some of them with a wrinkled surface. The ankles are swollen.

Results of a urinalysis and examination of the blood were normal.

The patient wants to work and will start next week.

DISCUSSION

DR. EDWARD A. OLIVER: I should like to report a recent experience with a case of rather severe pemphigus. The patient, a man aged 61, was in the hospital for four or five months this last year. He was covered from head to foot with pemphigus, so severe that I thought the outcome would be fatal. He was given acetarsone and did not respond well to it. Sulfadiazine and sulfathiazole were tried, but he did not respond to either one. After this I instituted therapy with acetarsone and large doses of vitamin D, 300,000 U. S. P. units daily, starting with 150,000 units a day. Immediately on receiving the vitamin D he began to improve, and within a month all the lesions had completely disappeared. I saw him yesterday; he appears to be in excellent shape, has only an occasional bulla and has gained 20 pounds (9.1 Kg.) in weight. An interesting feature is that during the therapy with vitamin D a severe arthritis involving his right hand

and shoulder developed. Thinking that this might be the result of the vitamin D therapy and that he might have deposits of calcium in the joint, I referred him to an orthopedic surgeon. The surgeon reported to me that the condition was not due to calcium but that it was an arthritis, evidently produced by the severe toxemia.

DR. OLIVER S. ORMSBY: About four months ago I saw this patient in consultation. He was in the hospital with an extensive bullous eruption. One point against a diagnosis of pemphigus was that the patient was in excellent general condition. The disease had had no effect on his health. Notwithstanding that, I had some blood sent to Baltimore, and the report was that the toxicity was not typical for pemphigus. I suggested the use of acetarsone with the technic outlined by Dr. Oppenheim. I want to say if one gives this drug irregularly without following this technic one does not get good results. In addition, he was given vitamin D in large doses, and in a couple of months he was improved. At that time he entered Cook County Hospital. I believe that the patient had pemphigus and that acetarsone and large doses of vitamin D were efficient therapeutic agents.

DR. MARCUS R. CARO: I first saw this patient on July 20, 1943, before he was seen by Dr. Ormsby or Dr. Oppenheim. At that time he had a generalized eruption of purplish red edematous papules and plaques, while on the extremities there were, in addition, a few vesicles and bullae on a red edematous base. There were papules and crusted lesions on the scalp. There were no lesions on the face or in the mouth, and Nikolsky's sign was absent. His chief complaint was severe itching. During the week that I observed him many of the wheal-like lesions developed into large bullae, but there were never any lesions in the mouth. The patient was in excellent physical condition, in spite of his extensive eruption. Because of the type of lesions which characterized the onset of his eruption, I made the provisional diagnosis of bullous toxic erythema. After seeing him today I find it more difficult than ever to convince myself that he ever had pemphigus.

DR. H. M. HEDGE: Last winter I presented an old woman with Senear-Usher syndrome. Almost every one present said that she had pemphigus. There were generalized bullae over the body. She was never toxic or sick, as patients with pemphigus generally are. She died rather suddenly of pneumonia about a month after I presented her.

DR. MAURICE OPPENHEIM (by invitation): When I saw this patient the first time he was in an almost hopeless condition. The entire body was covered by blebs and blisters; there were lesions in the mouth, and fever was present. Dr. Ormsby and Dr. Caro had seen the patient previously. I continued the treatment with acetarsone that Dr. Ormsby had prescribed, added to it transfusions, oatmeal baths daily and 5 per cent boric acid ointment instead of gentian violet (methylrosaniline chloride), which the patient used. I did not hear from him for two months, when he came to my office with almost intact but somewhat pigmented skin, as he has today. He starts to work next week. I am grateful to Dr. Oliver, Dr. Caro and particularly Dr. Ormsby for the discussion. I do not say that acetarsone is invariably successful in the treatment of pemphigus, but used in the right way it gives better results than the usual procedures in the treatment of this generally fatal disease.

Keratotic Hemangioma. Presented (by invitation) by DR. A. B. HENINGSEN.

M. S., a white man aged 31, has had a lesion on the right leg and foot since birth. It is sometimes painful and always tender to pressure.

The clinical and histologic diagnosis has been keratotic hemangioma. Some of the tumors have been removed partly by cautery and partly by surgical diathermy. Laboratory examinations have shown essentially normal conditions.

The histologic examination showed a high degree of hyperkeratosis with parallel arrangement of the horny lamellas alternating with whorl formation. The stratum spinosum showed acanthosis. The basal layer was normal and slightly pigmented. In the papillary layer and upper part of the corium the number of capillaries was considerably increased, and most of the capillary vessels and venules were dilated, many of them representing lakes containing blood. The walls of the vessel were normal. The collagen did not show any pathologic change.

DISCUSSION

DR. LOUIS A. BRUNSTING, Rochester, Minn.: Has an arteriovenous aneurysm been ruled out in this case?

DR. S. ROTHMAN (by invitation): We did not rule out arteriovenous anastomoses. Histologically only dilatation of veins was found.

DR. A. B. HENINGSEN (by invitation): A differential diagnosis of angiokeratoma (Mibelli) was considered but was ruled out because the vessels were dilated in the midcorium as well as in the papillae and also because the lesions had been keratotic from early childhood, whereas in angiokeratoma the lesions are at first smooth.

Psoriasis with Apparent Lichenification. Presented by DR. J. H. MITCHELL and (by invitation) DR. PEARL.

E. S., a man aged 56, first noticed the present eruption seventeen years ago. It has undergone periods of remission and exacerbations, the lesions on the legs being most persistent. He presents multiple, rather typical psoriatic lesions of the upper extremities and scalp, the only abnormality being the violaceous color. On the anterior surface of both lower extremities are large plaques of hyperkeratotic and lichenified areas of a dark violaceous hue.

The histologic examination of a section taken from the lower extremity showed a typical picture of psoriasis.

DISCUSSION

DR. S. ROTHMAN (by invitation): I understand a specimen for biopsy was taken from the leg. In other regions some of the lesions seemed to me similar to lichen planus papules with violaceous discoloration. I should like to ask whether a biopsy specimen was taken from these lesions. He also has lesions on the tongue which are annular and lichenoid.

DR. JAMES H. MITCHELL: There was a biopsy of both arm and leg. The lesions on the left leg were suggestive of a hypertrophic lichen planus. We suspected when we first saw the patient that he had both psoriasis and lichen planus. We showed him because we thought his case would make an interesting discussion.

Hereditary Ectodermal Dysplasia. Presented (by invitation) by DR. S. ROTHMAN and DR. Z. FELSHER.

R. S., a 17 year old student, has known of the absence of certain upper and lower teeth since childhood. Two years ago, while in Spain, the patient noted that he had frequent periods of fever, with temperatures up to 104 F., when the outdoor temperature was over 85 F. Previous to this he had always lived in the temperate climate of southern Germany and northern France. The family history revealed known defects of dentition and hair, the family tree showing sex-linked inheritance in males with female conductors.

The examination shows dryness of the skin, fine scanty hair over the scalp and pubic area, downy hair on the chest and normal hair of the beard and axillas. The lower part of the face is incomplete in development due to hypoplasia of the jaw. The patient has had some dental repair, but as far as can be determined from the history and examination there is a congenital absence of the lower incisors, right and left first and second bicuspids of both jaws and upper lateral incisors. There are now fourteen teeth instead of the normal twenty-eight for his age. Dystrophy of enamel cannot be noted at present because all his teeth have been crowned, except the second molars, which are normal (Dr. Blaney, dental clinic).

Sweat secretion was induced in a heat chamber, and sweating was visualized by Minor's iodine-starch method. Body temperature was taken by mouth. The test showed a striking decrease in the number of eccrine sweat glands over the anterior surface of the body, especially the lower half. The apocrine glands of the axillas and the upper perimamillary glands gave normal response. When the body temperature rose to 101 F., the experiment was discontinued. As compared with normal persons, who under similar conditions show diffuse darkening all over the body with no rise in body temperature, the patient displayed only single, scanty, sweat droplets without tendency to confluence.

The reaction to a 1:100 solution of acetylcholine injected intradermally was greatly decreased as compared with a normal reaction.

DISCUSSION

DR. S. W. BECKER: I should like to report briefly on a patient seen recently with a condition similar to the one presented. A young man, aged 19, sweats only on his palms and soles. There is no family history of anhidrosis or other epidermal defects. The father stated that the patient had sweat normally until he had an eruption at the age of 4½ years which was called measles. The eruption was so severe that both the hair and the nails were lost, but both returned. Since that time he has sweat only on his palms and soles. He becomes febrile if he exerts himself during warm weather, but he is able to carry out work in air-conditioned quarters.

A section removed from the arm showed no sweat glands, while a section from the axilla showed apocrine glands, the ducts of which were somewhat dilated and cystic. The section on anhidrosis in the Jadassohn "Handbuch" does not give specific information relative to the condition of the apocrine glands in generalized anhidrosis, but they arise in a different manner than do eccrine glands and function only after puberty. Consequently, there is no good reason why they could not be present in generalized anhidrosis. The fact that the patient sweats on the palms and soles limits the diagnosis to that of partial anhidrosis. I could find no reported instance of severe dermatitis being followed by permanent loss of the sweat glands. The father's statement that the patient sweat normally up to the onset of the dermatitis may be in error.

DR. THEODORE CORNBLEET: Apropos of Dr. Becker's remark with regard to the apocrine glands, this patient was hairless except over the pubic region and in the axillas. He has the long slender build I have seen in others with this syndrome.

DR. S. ROTHMAN (by invitation): The sweating test clearly demonstrated that the apocrine glands are intact. I think in such a case the physiologic experiment is superior to histologic examination. If a biopsy is made, we may not find any sweat glands, whereas with the sweating test we are able to map out the few functioning eccrine glands.

An interesting feature in the history of this patient is that he went to several physicians and to several clinics complaining of fever, but no elevation of temperature was found in the cool office rooms and he was thought to be hysterical. Another thing is that he did not have any trouble as long as he lived in the moderate climates of Germany and France.

MANHATTAN DERMATOLOGIC SOCIETY

ANTHONY C. CIPOLLARO, M.D., *President*

WILBERT SACHS, M.D., *Secretary*

Nov. 9, 1943

Nevus Sebaceus and Milium-Like Lesion Respectively in Apparently Identical Twins. Presented by DR. DAVID BLOOM.

J. B., an infant girl aged 8 months, was brought to the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital in October 1943 because of a cutaneous lesion behind the left ear which had been present since birth.

Behind the superior part of the left auricle and extending into the hairy scalp there is a reddish, slightly crusted, half-dollar-sized plaque in which are visible several whitish, sebaceous, cystlike lesions.

The twin sister, who closely resembles this child, presents on the left ankle a lentil-sized whitish lesion which looks like milium.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: When a post-auricular nevus was seen in one of the twins, a search was made for a similar one in the other twin. Such a lesion was discovered on the foot; it is probably of the same nature although in a different location.

DR. GEORGE C. ANDREWS: I think the incidence of two nevi of what I believe are the same type in identical twins is unusual and worth recording. I believe the milium-like lesion of the 1 child will be found to be somewhat similar microscopically to the nevus seborrheicus. Both have the yellowish color of sebaceous material.

DR. HERMAN SHARLIT: These infants remind me of another pair of twin girls, apparently identical, who showed eczema on exactly the same spots.

DR. DAVID BLOOM: The observation of identical and fraternal twins in regard to abnormalities and diseases today is recognized as a most important source for obtaining knowledge of the genesis of pathologic con-

ditions. In dermatology comparatively little has as yet been achieved in this field of investigation. Study of twins on a large scale promises to be fruitful. It is pertinent, therefore, to put on record the peculiar findings in these apparently identical twins.

Dermatitis Herpetiformis (Localized on the Neck). Presented by Dr. George C. Andrews.

M. S., a white man aged 32, complains of an eruption involving the neck and face which has been present since March 1942. The lesions first appeared on the neck and remained at that location until four and a half months after the onset, at which time fever, swelling of the glands of the neck and a rash on the face and head developed. At no time since then has he been entirely free from the eruption, although there are times when he is much worse than at others. Infections of the upper respiratory tract, fatigue and gastrointestinal upsets seem to aggravate the eruption. There is no history of a similar disease in his family.

On the neck and face there are isolated, rather sharply defined areas of erythema, some of which are covered with crusts. All begin as groups of small firm vesicles which usually arise on erythematous bases.

A blood count performed on Nov. 9, 1943 showed 4,800,000 erythrocytes, 90 per cent hemoglobin and 7,800 leukocytes, with a differential count of 41 per cent neutrophils, 50 per cent lymphocytes and 1 per cent eosinophils, with no basophils or monocytes. The urine was normal. Roentgenograms of the teeth showed them to be normal except that one had been extracted, which had caused no change in the eruption. From a biopsy at Johns Hopkins Hospital, Baltimore, the eruption was diagnosed as dermatitis herpetiformis. A biopsy on Nov. 12, 1943, was reported by Dr. G. F. Machacek as follows: There were many vesicles in the epidermis which were infiltrated with eosinophils. This infiltration extended into the corium, and the lesion could be interpreted as pemphigus or dermatitis herpetiformis (Duhring's disease), probably the latter. There were none of the dyskeratotic phenomena seen in Hailey's chronic benign familial pemphigus.

Therapy has consisted of use of sulfadiazine and an arsenical internally and bland applications locally. The patient had previously had many roentgen treatments, without improvement.

DISCUSSION

Dr. Howard Fox: Many dermatologists think that Duhring's disease can be localized, as it is in this case, but this is certainly unusual. It would be difficult to make a diagnosis at the present time. I should never have thought of that disease from the present appearance of the eruption.

Dr. George C. Andrews: This man has been treated with acetarsone; he has had 0.25 Gm. tablets daily for ten days, and the eruption is pretty well cleared. However, he formerly presented groups of blisters on the neck.

Dr. Henry Michelson (by invitation): I see a great deal of dermatitis herpetiformis, and almost invariably it occurs in farmers. The patients have classic During's disease, with multiformity, localization and intense subjective symptoms. The question comes to my mind, can dermatitis herpetiformis be diagnosed microscopically? and I am inclined to think that it cannot be with certainty. I think Dr. Montgomery has pointed out that too much emphasis has been laid on eosinophilia, both in the lesion and in the blood.

I cannot, of course, doubt the diagnosis for the presented patient, but I have had no experience with localized dermatitis herpetiformis.

Dr. E. William Abramowitz: I should like to ask Dr. Andrews what correlation there is between the numerous epithelial cysts and the lesions present on the sides of the neck in this patient. Epithelial cysts are not present as a rule in dermatitis herpetiformis, although their presence is a feature of other bullous diseases, such as pemphigus and epidermolysis bullosa. The presence of bullous lesions, together with the histologic report and the response to treatment, indicates an unusual type of dermatitis herpetiformis.

Dr. John Garb (by invitation): I wish to confirm Dr. Rosen's statement as to the occurrence of localized Duhring's disease. I had a different experience with sulfadiazine. A young Negro boy had Duhring's disease for eight years, and nothing seemed to help him. He received solution of potassium arsenite, autohemotherapy and other forms of treatment. I prescribed sulfathiazole in doses of 0.24 Gm. three times a day. He responded favorably but not completely. I then treated him with the same dosage of sulfadiazine. The lesions cleared entirely and have remained clear for the past year.

Dr. David Bloom: Localized dermatitis herpetiformis is probably not infrequent. I have at present under observation at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital a man who has suffered from a more or less generalized dermatitis herpetiformis which became limited to the neck and chin and is extremely resistant to treatment.

Dr. Wilbert Sachs: I think all agree that as the patient appears tonight no one would have made a diagnosis of dermatitis herpetiformis. As Dr. Andrews said, however, the lesion taken for biopsy was not one of those present tonight. The microscopic conditions of the section submitted are characteristic of dermatitis herpetiformis.

I agree with Dr. Michelson that the lesions of dermatitis herpetiformis are not herpetic in that they are not epidermic lesions but are always subepidermic. The epidermic lesion present in this slide is a secondary impetiginous lesion.

It is true that it may be difficult to differentiate between Duhring's disease and pemphigus. The former is always subepidermic; the latter may be either subepidermic or epidermic. However, when one finds edematous papillary bodies with numerous eosinophils, as one sees here, the diagnosis of dermatitis herpetiformis is evident.

Dr. Jack Wolf: A patient recently seen in Dr. Wise's service presented numerous lesions on the torso similar to the lesions this patient shows tonight.

Dr. Maurice J. Costello: In addition to the dermatologic complaint which the patient presents, I am under the impression that he has hyperthyroidism. He has exophthalmos; his movements are jerky, and he is nervous. I recall a patient with Duhring's disease who had lesions confined to the forehead.

Dr. Anthony C. Cipollaro: I agree with the diagnosis as presented. I think that both the clinical and the histologic evidence is there to confirm the diagnosis of Duhring's disease.

Dr. George C. Andrews: In the first place, I think it is well established that localized types of Duhring's disease do occur. They are fully described, most often on the extensor surfaces of the elbows or shoulders. It is unusual on the neck, and that is why the patient

is presented. So many patients with Hailey's benign pemphigus have been shown here that I thought this case would be a contrast. As to the epidermal cysts, they occur in any bullous disease, not only in epidermolysis bullosa but in many others. The basal metabolic rate in this patient was within normal limits.

A Case for Diagnosis (Ulerythema Reticulatum?). Presented by DR. MAURICE J. COSTELLO.

A. S., a woman aged 24, from Bellevue Hospital, has had a number of linear, slightly depressed, superficial scars on the cheeks for the past year. She states that these lesions appeared spontaneously without any preexisting eruption. The linear and angular appearance of these cicatrices suggests the possibility of self infliction, although the patient says that they have not been so produced. She states that she had a severe sunburn of the face two and a half years ago.

DISCUSSION

DR. MIHRAN B. PAROUNAGIAN: I saw no similarity between this case and the cases reported by Dr. MacKee and me. Our patients had symmetric distribution of the lesions on the cheeks; they appeared in childhood, were grouped and consisted of comedos and horny, follicular plugs. No papules, pustules or scales were present. There was pronounced reticulated atrophy. The cases were reported in an article entitled "Folliculitis Ulerythematosa Reticulata" (*J. Cutan. Dis.* **36**:339-350 [June] 1918).

DR. HERMAN SHARLIT: In spite of what Dr. Parounagian says, I should say that while these atrophies are linear they all belong in one category of cutaneous disturbance, whatever name one wants to give it.

DR. ISADORE ROSEN: I am inclined not to accept the diagnosis as presented. There are features absent in this case, such as erythema, circumscribed reticulation and duration. The few instances I have seen began early in life.

DR. E. WILLIAM ABRAMOWITZ: I remember that when the article was published there was some correspondence in the *Journal of Cutaneous Diseases* (**36**: 601 [Dec.] 1918) because of a possible resemblance to a nevus follicularis keratosis, reported by White. The patient presented tonight shows a threadlike or wormlike band with no plugging or comedo formation; it is of comparatively short duration, and there is no redness. The lesions might conform to the type described by Pernet as atrophoderma reticulata symmetrica faciei, mentioned by MacKee and Parounagian in their original article (*J. Cutan. Dis.* **18**:346 [Dec.] 1918).

DR. JACK WOLF: I wonder whether this patient's memory may not be faulty regarding the previous existence of acne lesions. Perhaps these scars are the sequelae of acne, in spite of the unilateral character of the eruption.

DR. DAVID BLOOM: I agree with Dr. Rosen that the eruption on the face does not look like ulerythema reticulatum. The linear superficial scars are, I believe, due to some abnormality in the elastic or connective tissue resembling premature senility of the skin.

DR. MAURICE J. COSTELLO: Ulerythema reticulatum was the nearest I could come to a clinical diagnosis. At least, I think that the condition this patient presents is related to it. The patient states that at no time did she have acne or any preexisting eruption to account for the lesions she presents. The scars were vermiculate in outline and in distribution.

SAN FRANCISCO DERMATOLOGICAL SOCIETY

Arne Ely Ingels, M.D., Chairman
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Nov. 12, 1943

Lupus Erythematosus Disseminatus, Late Stage, with Degenerative Changes. Presented by DR. ARNE ELY INGELS.

J. M., a white laborer, presents lesions involving the entire face, lips, ears and neck. He shows a mixed picture of extensive scar formation and atrophy. Lesions of active lupus erythematosus are disseminated widely, alternating with scar tissue and incipient degenerative lesions. One of these (on the right cheek) is an epithelioma, which has been treated with roentgen rays. Others are either incipient epitheliomas or active lesions of lupus erythematosus.

The patient entered this office on Dec. 2, 1941, with a history of lupus erythematosus of about twelve years' duration. He received treatment for epitheliomas in 1938, which, according to him, accounts for some of the residual scar formation. Since then repeated physical examinations have revealed nothing of particular interest, except an absence of infectious or suppurating lesions. Repeated blood counts have been within normal limits.

DISCUSSION

DR. H. E. ALDERSON: This man shows rather severe involvement. I wonder what treatment he had before he saw his latest physician. He tells me that he was working during the height of the process. I noticed two or three areas where one might possibly expect an early squamous cell epithelioma.

DR. H. E. MILLER: From this short examination I was unable to decide whether this man has lupus erythematosus or an extensive seborrheic involvement with keratoses and malignant degeneration. The fact that his eruption did not improve with gold or bismuth therapy might favor this opinion. Furthermore, malignant changes are not generally observed in patients with lupus erythematosus but are of frequent occurrence in persons with senile seborrheic changes.

DR. A. E. INGELS: How much of these changes should be attributed to previous roentgen ray and radium treatments and how much to the lupus erythematosus is impossible to say, and what would be the best method of handling epithelioma in a patient with such severe chronic lupus erythematosus should be open to discussion. Should one continue irradiation with roentgen rays or with radium of small epitheliomatous areas, or should other methods be attempted?

DR. H. J. TEMPLETON, Oakland: I think that irradiation is absolutely contraindicated and particularly in this case in which one is working with an epithelioma on an atrophic basis; destruction by the electric cautery, by desiccation or by surgical procedures should be used. One should certainly destroy—not use irradiation.

DR. A. E. INGELS: I wondered whether the atrophic areas not previously treated should be excised. The patient had several small epitheliomas in a completely atrophic white scar treated with roentgen rays according to the method of Coutard, with excellent result and no exacerbation of lupus erythematosus in the adjoining areas; so I felt justified in using roentgen rays. There was only one active process. However, one may doubt whether it is the best method for the present lesion, fulfilling the same requirement.

In answer to Dr. Alderson's question about the previous treatment, I should like to say that the patient had injections of gold sodium thiosulfate for a time with Dr. Alderson and had little response. Bismuth preparations and sulfadiazine were ineffective. As to whether it is a seborrheic dermatitis, I hesitate to answer, since I did not see the lesions in the early stage, but I have never seen seborrheic dermatitis produce extensive atrophy.

DR. H. E. ALDERSON: The fact that this man received injections of a gold preparation when he was seen a long time ago must mean that a definite diagnosis of lupus erythematosus was established at that time. The disease does not always respond to gold.

A Case for Diagnosis (Erythema Multiforme?). Presented by DR. OTTO E. L. SCHMIDT.

I. H., a 48 year old American housewife, complains of an eruption recurrent on the hands and feet for five years. In 1934 an area of leukoplakia on the right side of the tongue was treated with 3 milligram hours of radium. In 1938 a squamous cell epithelioma at the same site was treated with roentgen rays (9,000 r to the lesion and 2,500 r of external radiation to the right cheek) with no recurrence to date. During the course of roentgenotherapy she had a fever followed by a scarlatiniform rash of the hands and feet, which spread over the body and then regressed in about two weeks.

During regular examinations in the tumor clinic an episode of bilateral conjunctivitis occurred in April 1940, at which time a chorioretinitis was also noted.

In May 1943 she had a sore throat, a symmetric erythematous eruption of the dorsa of the hands and nodules on the shins. Sulfadiazine by mouth had no effect; the lesions cleared in five weeks without further medication.

Three weeks ago a similar episode began with sore throat, conjunctivitis and an eruption in the same locations. Calcium gluconate, flea antigen and roentgen rays (75 r) to the eyes and hands given by her physician caused no improvement. On entry to the hospital on October 23, she presented bilateral conjunctivitis, atrophy and telangiectasia of the right side of the tongue, reddened throat, bright red smooth plaques on the dorsa of both hands and ecchymotic macules and excoriated red nodules on the shins and calves.

During her stay in the hospital the lesions have slowly paled. The hands are desquamating. There is still a low grade fever. On November 11 an electrocardiogram showed a prolonged PR Interval. The next day she had auricular flutter, followed by fibrillation alternating with a normal rhythm. The blood count was essentially normal. No porphyrins were found in the urine. Cultures of blood, agglutination tests for typhoid, paratyphoid and brucella organisms and cutaneous tests with coccidioidin and tuberculin all gave negative results. Material from the throat on culture yielded beta hemolytic streptococci.

DISCUSSION

DR. H. J. TEMPLETON: Regardless of whether one calls this erythema nodosum, erythema multiforme or febrile nonsuppurative panniculitis, it is undoubtedly a reaction of the cutaneous vascular tissues to a focus of infection or to some other toxin.

DR. H. E. ALDERSON: I think that the lesions on her legs are typical of erythema nodosum. She has lesions on the backs of her hands and scleral congestion, which make me feel that regardless of whatever else she has she may be suffering from ariboflavinosis.

DR. N. N. EPSTEIN: This patient presents lesions of both erythema multiforme and erythema nodosum. One might say that she has a toxic erythema with nodose and with multiform lesions. Such a picture is not uncommon.

DR. ERVIN EPSTEIN: I believe that the lesions on the hands are typical of pellagra. Those on the legs probably represent a secondary toxic reaction. The ingestion of vitamins is not synonymous with their absorption.

DR. E. K. STRATTON: I saw this patient about two weeks ago. At that time she had many scratched papules on the extremities and two small nodules on each hand. This was associated with a severe conjunctivitis. The ophthalmologist was of the opinion that the conjunctivitis was allergic and not infectious. Her medical doctor thought the whole condition arose from a throat infection. But she had no fever. I saw her again three days later. In the meantime she had been on calcium therapy. At this time she had grouped urticarial lesions on the chest which certainly looked like bites of some insect. She was given 0.2 cc. of flea antigen (Lilly). The next day she was worse. Whether that had anything to do with the present symptoms, I do not know. But the lesions I saw ten days ago I could not diagnose as erythema multiforme or erythema nodosum. I called it a toxic erythema. However, tonight I should call it an erythema nodosum.

DR. C. J. LUNSFORD, Oakland: Is there a history of any previous attacks?

DR. MERLIN MAYNARD, San Jose: I looked at her eyes and thought the disease was ariboflavinosis. When I looked into her mouth, I saw startling roentgen damage to one side of her tongue; the other half was normal and showed no signs of ariboflavinosis. When I looked at the backs of her hands, I thought I saw pellagra or erythema nodosum. When I looked at her tongue again, I could not convince myself that it could be pellagra. The lesions on her legs are typical of a toxic reaction, and any one looking at her legs alone would say that the condition was erythema nodosum.

DR. E. K. STRATTON: Regarding the possibility of a vitamin deficiency, she stated that she had been taking multiple vitamin pills for the past three years. I have not heard of vitamins causing an eruption of this nature, but I asked her to discontinue using them, nevertheless. I think this fact precludes the possibility that her condition is due to a vitamin deficiency.

DR. OTTO E. L. SCHMIDT: Most of the questions raised are answered in the presented history. The conjunctivitis is not typical of ariboflavinosis; in this disease a keratitis with vascularization at the limbus is usually seen. Pellagra seems unlikely, since the lesions are fading and she has stopped taking vitamin preparations. Nodular lesions may be found in erythema multiforme, and I do not see the purpose of making two diagnoses for 1 patient. The internists are entertaining a diagnosis of rheumatic fever because of the cardiologic observations.

This type of case was well described forty years ago by Osler (*Am. J. Med. Sc.* **127**:1, 1904), in his discourse on visceral manifestations of exudative multiform erythema.

Hyperpigmentation of the Face (Lupus Erythematosus?). Presented by DR. EUGENE OSTWALD (by invitation).

J. S., a white woman aged 40, was first seen on Oct. 14, 1942, because of burning, itching and pigmentation

of the face of six months' duration. Home remedies, including cold cream, had been applied. Because of irregular menses during the past six months, injections of diethylstilbestrol, estrone in oil and thyroid by mouth were given by her physician.

At that time there was a blackish brown pigmentation of the face, particularly the forehead, cheeks, nose and ears. The peripheral areas were reddish pink. Dilated follicles, some filled with horny material, were present. Reddish indurated areas occupied the "V" neckline area of the chest and the knuckles.

With treatment with injections of bismuth and of gold preparations, roentgen rays and solid carbon dioxide locally and sulfapyridine and vitamins by mouth, the acute lesions have disappeared; the pigmentation has decreased.

A faint trace of albumin in the urine, a slight leukopenia and a basal metabolic rate of —15 per cent were the only pertinent laboratory observations.

DISCUSSION

DR. H. E. ALDERSON: It looks like tar melanosis. The patient spends long hours over a gas stove. The emanations from the gas stove could carry tar elements.

DR. MERLIN MAYNARD, San Jose: I agree with Dr. Alderson in part. It looks like berlock pigmentation. However, I do not think there is any dermatitis present now. The patient stated that she used to apply perfume to her face and within the last year used perfumed creams. There was not enough evidence for lupus erythematosus. I think it is a berlock type of pigmentation secondary to irritation.

DR. H. J. TEMPLETON, Oakland: I agree with Dr. Maynard. The patient told me specifically that she used perfumed spirit N. F.

DR. N. N. EPSTEIN: Any dermatitis causes pigmentation in dark-skinned persons. The patient had active lesions of lupus erythematosus which probably produced the pigmentation. The symmetry of the lesions on her cheeks and forehead suggest lupus erythematosus rather than a berlock dermatitis.

DR. ERVIN EPSTEIN: Pigmentation from lupus erythematosus is seen in many dark-skinned persons. The pigmentation in this case could be due to lupus erythematosus. The location suggests such a cause.

DR. EUGENE OSTWALD (by invitation): I believe that this is not a berlock dermatitis for several reasons. First of all, the entire pigmentation started after the patient had had typical lesions of lupus erythematosus on her face, ears and fingers. In addition, I do not recall that berlock dermatitis presents such a deep pigmentation that continues for as long as a year and a half. Pigmentations of the berlock type usually occur in irregular and bizarre outline, while here it is symmetric and uniform. Berlock dermatitis, as far as I know, clears spontaneously in a relatively short time. There are still some inflammatory lesions on the fingers. A rather interesting point is that this patient noticed the first changes in her skin after the endocrine disturbances had occurred. Up to that time she had always menstruated regularly. The menstruation became irregular and then stopped completely for months. At the same time her weight increased enormously, so that this rather short woman weighs 205 pounds (93 Kg.).

Her first cutaneous lesions and also the hyperpigmentation started exactly at the same time. It is possible that the endocrine disturbances have something to do with the entire picture.

A Case for Diagnosis (Lymphoblastoma?). Presented by DR. R. A. STEWART.

T. B. H., a white woman, was first seen on Aug. 15, 1943. There was a diffuse bright symmetric erythema distributed over the face, neck, trunk and upper arms. There was no lymphadenopathy. The skin was extremely warm to the touch and somewhat tender on palpation, but there was no induration. Physical examination showed essentially normal conditions except for the skin.

About five years previously she had had an erythematous pruritic dermatitis scattered on the trunk. This disappeared in a short time without treatment, and she is not certain how long it lasted. She experienced mild recurrences at infrequent intervals. The present episode dates back about eighteen months.

The patient was started with fractional unfiltered roentgen radiation to the face, neck and upper portion of the trunk. After the first treatment she was apparently comfortable for about four months. When she returned, the skin was more erythematous and more painful. There was definite enlargement of all cervical lymph nodes. Roentgen therapy was resumed. She was given arsenous acid (asiatic) pills, 1/9 grain (0.007 Gm.) twice daily for three weeks. To date she has had a total of 150 r of unfiltered roentgen rays. Her condition continued to become worse. A biopsy of the skin was not diagnostic.

Repeated blood counts during the past year have shown a consistent elevation of lymphocytes to 65 to 78 per cent, a depression of the polymorphonuclear cells to 17 to 27 per cent and a total white cell count of 9,000 to 25,600.

DISCUSSION

DR. H. J. TEMPLETON, Oakland: This was Dr. Allington's patient some time ago. Dr. Lunsford and I saw this patient with Dr. Allington in the early course of the disease. The last report of a biopsy was compatible with a diagnosis of mycosis fungoides. I think that this case definitely belongs in the group of cases of lymphoblastoma.

DR. A. E. INGELS: I feel that many of these eruptions cannot be classified. They belong to the general group of lymphoblastomas, but it is difficult to tell to which particular group they belong. In the superficial stages one cannot tell either clinically or histologically. They go on for years and years until many of them finally develop into one or the other of the lymphoblastomas.

DR. H. E. ALDERSON: About two or three times a year patients with such symptoms are seen, and one is not able to make a definite diagnosis even at autopsy.

DR. A. E. INGELS: It is also surprising that more lymphoblastomas are seen in the East than here.

Pemphigus Erythematosus (Senear-Usher?). Presented by DR. NORMAN N. EPSTEIN.

I. S., a Jewish housewife aged 45, who was presented before this society on Sept. 19, 1941 (ARCH. DERMAT. & SYPH. **45**:609 [March] 1942) and again on May 2, 1942 *ibid.* **47**:154 [Jan.] 1943) with a diagnosis of pemphigus vulgaris, is presented again with a diagnosis of pemphigus erythematosus (Senear-Usher).

A severe exacerbation of the pemphigus followed sunburn of the legs in July 1942, necessitating hospitalization until October 1942. At this time she had almost complete clearing except for an occasional bulla on the body or in the mouth. Crusted lesions were constantly present on the nose.

During the past few months the eruption on the nose has become butterfly in distribution. The lesions on the nose have always been moist, have never been bullous and resemble lupus erythematosus. Abortive bullae on the trunk and legs and in the mouth have continued to appear up to the present time.

Laboratory data have not changed since the previous presentations. There has never been leukopenia, anemia or signs of nephritis during the entire course of this disease.

DISCUSSION

DR. J. M. GRAVES: Every one agreed that this woman had pemphigus when we saw her before. The lupus erythematosus was not well developed at that time. As I recall, the bullae responded well to large doses of vitamin D.

DR. H. E. MILLER: I saw this patient with Dr. Epstein early in the course of her disease. She had four or five bullae on her chest which seemed to be characteristic of pemphigus. When she was previously presented before this society, I made the remark that I did not think a positive diagnosis of pemphigus could be made at that time. All of the lesions were nearly clear, and only a few desquamated areas remained. I saw her once or twice after that and was thoroughly convinced that she had pemphigus. When the lesions developed in a butterfly distribution over her face, I felt that we were justified in considering the diagnosis of pemphigus erythematosus.

DR. A. E. INGELS: A biopsy might throw more light on the diagnosis. Differential diagnosis between two conditions might possibly be borne in mind, lupus erythematosus and pemphigus.

DR. N. N. EPSTEIN: The first bullae developed in March 1941, and the patient has had occasional bullae since on the trunk and limbs and in the mouth. In July 1942 she had literally hundreds of bullae over the skin of her body and was extremely ill and at one time was practically moribund. She recovered from this exacerbation. She always had lesions around the nose during the entire course of the eruption. During the past few months a butterfly type of lesion has appeared on the face. The lesion on the nose is not typical of lupus erythematosus. It is moister and more crusted than a lesion of lupus erythematosus. I think the course of the disease is that of a benign pemphigus, and with the appearance of lupus-erythematosus-like lesions on the nose, it fits in with the diagnosis of pemphigus erythematosus.

Solid Edema of the Face. Presented by DR. H. J. TEMPLETON, Oakland.

A. Q., a white man aged 52 years, consulted me in July 1943 because of swelling of the forehead and the eyes. This began about thirteen months previously, has never disappeared and has been subject to periodic acute exacerbations. In these exacerbations his eyes are nearly closed.

When I first saw him the clinical appearance was, first, dermatitis venenata and, second, solid edema of the face from recurring erysipelas-like exacerbations. The persistence of the edema, the acute exacerbations and the negative reactions to patch tests have eliminated dermatitis venenata as a diagnosis.

He has had a long course of Streptococcus erysipelatis vaccine and has been given sulfanilamide during the acute attacks (this was discontinued because of pruritus of the feet). Improvement has been definite but slow.

DISCUSSION

DR. C. J. LUNSFORD, Oakland: I saw this patient several times with Dr. Templeton, and the lesions looked so much like erysipelas that I thought that Str. erysipelatis vaccine should be used.

DR. H. E. ALDERSON: Persistent edema of these areas suggests sinusitis. Has he had this?

DR. A. E. INGELS: He has edema of the lower extremities.

DR. H. E. ALDERSON: I was told that he has had several urticarial lesions. Could this possibly be an atypical manifestation of angioneurotic edema?

DR. MERLIN MAYNARD, San Jose: I have seen 2 patients in the last year with a disease similar to this one, for both of whom I tried various methods of treatment, including filtrated roentgen rays, without any result whatsoever. It seems that, as a rule, they are unresponsive to any form of treatment.

DR. H. J. TEMPLETON, Oakland: I think that this is a misplaced location for a process which has been seen fairly often associated with attacks of recurrent cellulitis of the legs. After each attack subsided, the leg would be slightly larger, until there resulted the permanent enlargement classified as elephantiasis nostras. A similar process may involve the lips and occasionally is seen on the forehead. Good results may be obtained with the use of Str. erysipelatis vaccine given intradermally over a long period. Examination of this patient's sinuses showed no evidence of infection.

Bandlike Scleroderma. Presented by DR. ARNE ELY INGELS.

F. B., a white 15 year old school girl, presents a bandlike formation of scleroderma, 2 cm. wide, involving the middle part of the forehead from the root of the nose to 1 inch (2.5 cm.) above the hair line, where the hair is absent. To the right of this band there is an area about 3 cm. wide which is irregular and more superficial.

The family and the past history were irrelevant. No medication was employed prior to the use of insulin-free pancreatic extract (padutin) last week. It is too early to evaluate results.

A Case for Diagnosis (Lupus Erythematosus? Acrodermatitis Chronica Atrophicans?). Presented by DR. ARNE ELY INGELS.

M. C., a 32 year old white housewife presents a round, well defined 8 cm., lesion on the anterior aspect of the lower part of the left leg. It has been increasing in size for several years. Surrounding the atrophic and telangiectatic central portion is a narrow raised zone of pigmentation and redness.

The Kolmer and Kahn reactions were negative. The blood count was normal, save for 15,700 white cells with a normal differential count.

Generalized Progressive Scleroderma Showing Sclerodactylosis in an Advanced Stage Responding to Insulin-Free Pancreatic Extract (Padutin). Presented by DR. ARNE ELY INGELS.

A. D., a 55 year old white housewife, presents an advanced stage of scleroderma involving the face and neck with extensive capillary design of a rosette type. The fingers show extreme atrophy without outright mutilation.

The eruption was of gradual onset and has progressed during the past seventeen or eighteen years. There

was no history of long-standing infections. Contrast baths were not of benefit. Despite much pain and discomfort, she has been able to carry on her work (sewing).

At entry the patient could not wrinkle the skin on the face; the cold and clammy feeling of the hands promised rapid progression of the disease. Insulin-free pancreatic extract (padutin), 10 units twice daily, has been taken regularly since May 22, 1943. The skin is getting warmer; there is less cyanosis and whitening, and the pain in the fingers has decreased. The forehead, nose and mouth can be wrinkled voluntarily. Use of padutin is being continued.

DISCUSSION OF THE PRECEDING THREE CASES

DR. A. E. INGELS: I thought that it would be of interest to discuss these 3 cases together because of their similarity. The case of M. C., however, stands in a class by itself. These cases are presented for classification.

DR. H. E. MILLER: I suggest the diagnosis of necrobiosis in the case of M. C.

DR. J. M. GRAVES: I agree with the diagnosis.

DR. W. M. MEININGER: I think it is scleroderma.

DR. OTTO E. L. SCHMIDT: I also think it is scleroderma. There is a violaceous border such as is seen in typical morphea, but I cannot account for the telangiectasia.

DR. ERVIN EPSTEIN: A biopsy is essential to establish the diagnosis. However, my impression is that it is necrobiosis lipoidica diabeticorum, and I consider the clinical picture definite.

DR. H. E. ALDERSON: I remember a patient with extensive scleroderma shown here a few years ago. The woman was a cripple in a wheel chair. Dr. Ingels treated her with padutin, and the last time I saw her she was much improved.

DR. A. E. INGELS: The patient Dr. Alderson refers to was a total cripple who could not even smile. Now she has improved to such an extent that she performs on the radio. There is no question about the value of padutin.

DR. H. E. ALDERSON: I also remember the case of a little girl with scleroderma who had a localized lesion extending down the center of the forehead, exactly as F. B. has. She has been taking thyroid for a year, and the sclerodermatous part has become soft and flexible and freely movable. The whole process has receded.

News and Comment

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

At the meeting of the American Board of Dermatology and Syphilology in Chicago, June 17 and 18, 1944, 41 candidates were examined. Of these, 30 passed the examination, 5 failed and 6 were conditioned.

The candidates who were certified by the Board are the following: Townsend W. Baer, Pittsburgh; Irving R. Bancroft, Los Angeles; Howard T. Behrman, New York; Roger J. Burkhardt, Rochester, Minn.; James W. Burks, New Orleans; Arthur C. Curtis, Ann Arbor, Mich.; Captain Theodore H. Finkle, Tuscaloosa, Ala.; Alexander A. Fisher, New York; Samuel Fisher, Surgeon (R), United States Public Health Service, Paterson, N. J.; Hal Freeman, Long Beach, Calif.; Major Joseph W. Galla, Chicago; Norman R. Goldsmith, Acting Assistant Surgeon, United States Public Health Service, Bethesda, Md.; Walter C. Herold, St. Louis; John T. Higgins, Jersey City, N. J.; John C. Holman, San Diego, Calif.; Sture A. Johnson, Ann Arbor, Mich.; Frances M. Keddie, San Francisco; Lieutenant Lloyd H. Kest, New York; Captain Lester W. Kimberley, Davenport, Iowa.; Major Zeno N. Korth, Omaha; Lieutenant Commander Robert C. Loigren, Shoemaker, Calif.; Ellen Reiner, New York; Stephen Rothman, Chicago; Clarence Shaw, Chattanooga, Tenn.; Winfred A. Showman, Tulsa, Okla.; Gerald K. Spencer, New York; Major Robert Stolar, Washington, D. C.; Ernest A. Strakosch, Chicago; Paul K. Weichselbaum, Chicago; Captain Marvin N. Winer, Buffalo.

Book Reviews

Clinical Tropical Medicine. By twenty-seven authors. Edited by Z. Taylor Bercovitz, M.D. Price, $14. Pp. 957, with 121 black and white illustrations and 15 plates. New York: Paul B. Hoeber, Inc., 1944.

Thousands of American fighting men in Africa, Asia and the Pacific Islands are now being exposed to the danger of tropical diseases and may easily become carriers of tropical infections even without clinical symptoms. Sick men are evacuated to the homeland, where the physicians are confronted with the task of treating diseases which in normal times they would hardly see. That is why the publication of "Clinical Tropical Medicine" is a most timely and welcome event. To a dermatologist this book is a valuable addition to his library of textbooks on diseases of the skin.

The importance of tropical diseases in dermatology or, vice versa, of dermatologic diseases in tropical medicine is illustrated by the fact that of the 72 chapters of this book 18, exactly one fourth, are devoted to the diseases in which the skin is either the only affected organ or the essential part of the clinical picture.

Dr. Howard Fox contributed the chapters on cutaneous and mucocutaneous (American) leishmaniasis, pinta, yaws (frambesia tropica) and verruga peruana. His text is based mainly on personal observations of these diseases in Brazil, Colombia, Mexico, Haiti and Peru and is unusually well illustrated by original clinical photographs.

Dr. Morris Moore wrote the entire section on mycotic diseases, over 100 pages. This part of the book is of special interest to students of tropical diseases because, as has been stated by Castellani, more than 20 per cent of these diseases are caused by fungi.

Excellent chapters have been written on granuloma inguinale by Dr. Helen O. Curth, on lymphogranuloma venereum by Dr. Arthur W. Grace, on tularemia by Dr. Lee Foshay, on leprosy by Dr. George W. McCoy and on beriberi, pellagra and scurvy by Dr. Edward B. Vedder. All of the twenty-seven authors are leaders in their respective fields.

The book is illustrated by 121 black and white pictures and 15 plates, many of them colored. The exposition of the subject follows a definite plan, giving in the same order for each disease, historical note, etiology, epidemiology, geographic distribution, pathology, symptoms, diagnosis, prognosis, treatment and prophylaxis. The most recent data have been included. A bibliographic index is attached to every chapter, and the literature includes publications up to 1942. The book is a fundamental contribution to medical literature and a source of valuable information to every physician regardless of his specialty.

Tropical Nursing: A Handbook for Nurses and Others Going Abroad. By A. L. Gregg, M.D. Second edition. Price, $3. Pp. 185. New York: Philosophical Library, Inc., 1944.

The title of this book is misleading in that the bulk of its 185 pages is really a condensed small manual of all of the aspects of about thirty-five different tropical diseases, considered in alphabetical order. The entities which comprise tropical medicine do not lend themselves to satisfactory presentation in small compass.

There are numerous signs of inadequate revision of the manuscript. These include biologic names of parasites (pages 59, 62 and 146), volumes employed in recording blood counts (page 151) and factual data relating to malaria (page 83) and to granuloma venereum (page 139). In the field of therapy it is stated that benign tertian malaria should be treated with 10 grains (0.65 Gm.) of quinine daily for three months (page 89) after the acute phase has been terminated with more intensive quinine therapy. Also, it is stated that sulfaguanidine should be given in doses of 1 Gm. per kilogram of body weight at intervals of four hours (page 49) in the early stages of acute bacillary dysentery. Such therapeutic procedures represent, in the one instance, a needless waste of quinine and, in the other, a practical certainty of sulfaguanidine poisoning.

The book is not to be recommended.

Oral Pathology: A Histological, Roentgenological, and Clinical Study of the Diseases of the Mouth. By Kurt H. Thoma, D.M.D. Second edition. Price, $15. Pp. 1328, with 1388 illustrations. St. Louis: The C. V. Mosby Company, 1944.

Since the subject matter of general pathology is not limited to the teeth, this volume perforce is one on special pathology. Whereas it begins with heredity and developmental anomalies in a more or less general way, thereafter the subjects are arranged "specially," that is, by regions (teeth, jaws, oral mucosa and salivary and mucous glands). Contrary to strict procedure in pathology, clinical observations are emphasized, even to the extent of including a paragraph on treatment at the end of each subject. Indeed, it is decidedly contrary to custom to include treatment in texts on pathology. The end result is a book that is really a treatise on clinical dentistry, with special emphasis on pathology. It still remains, however, that it is a credit to the author that pathology has been given emphasis, whatever the rest of the subject matter may consist of. In all of the medical specialties there is greater need for treatises on pathology than for works stressing the clinical side.

As to the details in the content of the book, the first three of its twelve parts are devoted to developmental anomalies. The subject matter does not stop simply at catalogues and descriptions of them, but there is included information as to the role of agencies underlying such anomalies—endocrine influences, vitamin deficiencies and defects of mineral metabolism. Particularly informative in this connection is the record of the methods followed in the experimental work on animals which have led to the conclusions reached. They are highly suggestive as a pattern for the study of hair during aging and perhaps of other special structures in the skin. Only a beginning has been made by dermatologists in this field. The role of embryology in determining the development of congenital clefts and fistulas is also valuable.

Parts 4 to 8 are devoted to essentially dental subjects, but in part 9, "Diseases of the Jaws," a chapter on facial cleft cysts appears which will be informative to some dermatologists. Part 10, "Tumors of the Jaws and Oral Mucosa," is definitely pertinent to the dermatologic field.

It is in part 11, "Diseases of the Oral Mucosa, Lips and Tongue," that the dermatologist will find the largest interest. In point are the oral lesions of the blood dyscrasias, Plummer-Vinson syndrome, hyperplastic gingivitis and multiple tumors of pregnancy. It must be pointed out, though, that this important chapter comprises only forty pages—a quite inadequate treatment for the purposes of the dermatologist. Naturally, the author has adapted his presentation to the purposes of the dentist, and these can scarcely coincide with those of the dermatologist.

The publisher has done his part by providing an attractive binding, clear printing and enamel paper. The text is remarkably free from typographic errors. On page 1242 "Moniliosis" should read "Moniliasis." At the bottom of page 1122, "indifferentiated" might possibly be expressed as "undifferentiated." Rather glaring lapses in proofreading are indicated on page 1270 (where "Penicillium mucor niger" is quoted in connection with the black hairy tongue) and again on page 848 ("connective tissue septa within the nuclei of which may be found a few giant-cells and lymphocytes"). These errors are inconsequential, though, in relation to the meritorious general level of the book.

Illustrations are good on the whole, except for the overuse of red in the colored illustrations, which is common practice on the part of most American publishers. Diagrams have been freely used and to good effect.

To sum up, this is a monumental work in which from place to place the dermatologist will glean many items of information. It adds little to the material on the mucous membranes which appears in at least one modern textbook of dermatology. Its main value to the dermatologist is as a place of reference when his problem carries him somewhat too far from the mucous membrane of the mouth and he desires to learn the full setting in which his problem lies.

Virus Diseases in Man, Animal and Plant. By Gustav Seiffert. English Translation by Marion Lee Taylor, Ph.D. Price, $5. Pp. 322. New York: Philosophical Library, Inc., 1944.

This 322 page book is less than ⅝ inch thick in its cloth cover and is easily handled. It is a translation of the second German edition, published in Germany in 1942. The first edition is said to have appeared in 1941.

The publishers say that Dr. Seiffert is a bacteriologist, formerly of the University of Hamburg, and that he has done no outstanding investigations in the field of viruses but has written a good deal on bacteriology and laboratory procedure.

The book is translated and published on the recommendation of the National Research Council. It is intended to serve as a guide to persons who wish a general view of the virus problem, with references to the original reports.

Ninety pages are devoted to a general discussion of viruses. One hundred and sixty following pages give brief reviews of the available information on diseases of man, mammals and birds which are either certainly or possibly due to viruses. Virus diseases of insects and of plants are each covered in ten pages. A discussion of the virus-like organisms follows, and the final twenty pages are devoted to laboratory methods of virus investigation. There is a ten page index.

The most recent references are to 1938 publications (probably because of the onset of war). This should be kept in mind by readers, for much work has been done in the past six years which is not reported in this book.

The translation seems carefully done—in fact, too carefully for easy reading. The German construction of sentences and paragraphs is retained to an unnecessary degree. Instead of the usual "e. g.," the translator has used "for ex.," an unexpected annoyance to meet often.

On page 249 appears what is probably an added word, "fever," in the following sentence: "If the inoculation papillomas are treated with scarlet fever R, their growth experiences an extraordinarily great growth in contrast to the control." This quotation is given to illustrate not the added word but only the general form of the translation.

The book is well printed and shows few typographic errors. The references, which are placed at the bottom of each page, are adequate for the period covered but, as stated, do not cover any of the literature since 1938.

This book should be useful to all persons who wish a general view of the virus problem, and the author has been careful to avoid dogmatic statements of his own opinion.

Directory of Dermatologic Societies *

INTERNATIONAL

Tenth International Congress of Dermatology and Syphilology

Oliver S. Ormsby, President, 25 E. Washington St., Chicago.
Paul A. O'Leary, Secretary-General, 102–2d Ave. S. W., Rochester, Minn.
Place: New York. Time: Postponed indefinitely.

Pan American Medical Association, Section of Dermatology and Syphilology

J. J. Eller, President, 745–5th Ave., New York.
Austin W. Cheever, Secretary, 464 Beacon St., Boston.

FOREIGN

British Association of Dermatology and Syphilology (Canadian Branch)

B. Usher, President, 1538 Sherbrooke St. W., Montreal.
Frederick Kalz, Secretary-Treasurer, 1414 Drummond St., Montreal.

Royal Society of Medicine, Section of Dermatology

A. C. Roxborough, President, 121 Harley St., London, W. 1, England.
E. W. Prosser Thomas, Secretary, 27 Selwyn Court, Church Road, Richmond, Surrey, England.

Sociedad Mexicana de Dermatología

Jorge Millán Gutiérrez, President, Mexico, Mexico.
Pedro Daniel Martínez, Secretary, Zacatecas 220-6, Mexico, Mexico.

NATIONAL

American Medical Association, Scientific Assembly, Section on Dermatology and Syphilology

Clyde L. Cummer, Chairman, 1422 Euclid Ave., Cleveland.
Nelson P. Anderson, Secretary, 2007 Wilshire Blvd., Los Angeles.

American Academy of Dermatology and Syphilology

George M. MacKee, President, 999–5th Ave., New York.
Earl D. Osborne, Secretary, 471 Delaware Ave., Buffalo, N. Y.

American Board of Dermatology and Syphilology

Howard Fox, President, 140 E. 54th St., New York.
C. Guy Lane, Secretary-Treasurer, 416 Marlborough St., Boston.

American Dermatological Association

Joseph Klauder, President, 1934 Spruce St., Philadelphia.
Harry R. Foerster, Secretary, 208 E. Wisconsin Ave., Milwaukee.

Society for Investigative Dermatology

Fred D. Weidman, President, 1930 Chestnut St., Philadelphia.
S. William Becker, Secretary, 8 S. Michigan Ave., Chicago.

SECTIONAL

Central States Dermatological Association

John E. Rauschkolb, Secretary-Treasurer, 1808 Republic Bldg., Cleveland.
Place: Cleveland. Time: Postponed indefinitely.

Mississippi Valley Dermatological Society

Lawrence C. Goldberg, Secretary-Treasurer, 623 Doctors Bldg., Cincinnati.
Place: Chicago.

New England Dermatological Society

Jacob H. Swartz, President, 371 Commonwealth Ave., Boston.
Francis M. Thurmon, Secretary, 520 Commonwealth Ave., Boston.

Northern New Jersey Dermatological Society

John Kiley, President, 94 Park St., Montclair.
Henry Abel, Secretary, 339 Union Ave., Elizabeth.
Place: Academy of Medicine of Northern New Jersey, Newark. Time: Third Tuesday of March, April, October and December.

Southeastern Dermatological Association

Howard Hailey, Chairman, 107 Doctors Bldg., Atlanta, Ga.
A. H. Lancaster, Secretary, P. O. Box 585, Knoxville, Tenn.

Southern Medical Association, Section on Dermatology and Syphilology

Clinton W. Lane, Chairman, Metropolitan Bldg., St. Louis, Mo.
Francis A. Ellis, Secretary, 8 E. Madison St., Baltimore.

Southwestern Dermatological Society

Louis Jekel, President, Professional Bldg., Phoenix, Ariz.
George K. Rogers, Secretary, Grunow Memorial, Phoenix, Ariz.

STATE

California Medical Association, Scientific Assembly, Dermatology and Syphilology Section

Irving R. Bancroft, Chairman, 1052 W. 6th St., Los Angeles.
Chris Halloran, Secretary, 1052 W. 6th St., Los Angeles.

Connecticut State Medical Society, Section on Dermatology

Harry Bailey, Chairman, 242 Trumbull St., Hartford.
Louis O'Brasky, Secretary, 1172 Chapel St., New Haven.

Florida Society of Dermatology and Syphilology

J. Frank Wilson, Chairman, 415 Greenleaf Bldg., Jacksonville, Fla.
Wesley W. Wilson, Secretary, 322 Citizen's Bldg., Tampa, Fla.

* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

LOUISIANA DERMATOLOGICAL SOCIETY

M. T. Van Studdiford, President, 912 Pere Marquette Bldg., New Orleans.
R. A. Oriol, Secretary-Treasurer, 921 Canal St., New Orleans.

MASSACHUSETTS MEDICAL SOCIETY, SECTION ON DERMATOLOGY AND SYPHILOLOGY

John G. Downing, President, 520 Commonwealth Ave., Boston.
G. Marshall Crawford, Secretary, 1101 Beacon St., Boston.

MEDICAL SOCIETY OF THE STATE OF NEW YORK, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Harry C. Saunders, Chairman, 159 W. 87th St., New York.
James W. Jordan, Secretary, 471 Delaware Ave., Buffalo.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, SECTION ON DERMATOLOGY

Bernhard A. Goldmann, Chairman, 500 Penn Ave., Pittsburgh.
M. A. Pettler, Secretary, 1319–8th Ave., Beaver Falls.

MICHIGAN STATE MEDICAL SOCIETY, SECTION ON DERMATOLOGY AND SYPHILOLOGY

William G. Wander, Chairman, 504 Kales Bldg., Detroit.
Ruth Herrick, Secretary, 607 Medical Arts Bldg., Grand Rapids 2.

MINNESOTA DERMATOLOGICAL SOCIETY

S. E. Sweitzer, President, 825 Nicollet Ave., Minneapolis.
Harry A. Cumming, Secretary-Treasurer, 419 Medical Arts Bldg., Minneapolis.
Time: First Friday in January, April, July and October.

OKLAHOMA STATE DERMATOLOGICAL SOCIETY

John H. Lamb Jr., President, Medical Arts Bldg., Oklahoma City.
M. M. Wickham, Secretary, 716 W. Symmes St., Norman.

TEXAS DERMATOLOGICAL SOCIETY

J. Lewis Pipkin, President, 705 E. Houston St., San Antonio.
Duncan O. Poth, Secretary-Treasurer, 414 Navarro St., San Antonio.

LOCAL

BALTIMORE-WASHINGTON DERMATOLOGICAL SOCIETY

Joseph V. Kennedy, Chairman, 1835 I St. N. W., Washington, D. C.
Hayden Kirby-Smith, Secretary-Treasurer, 1610–20th St., N.W., Washington, D. C.
Place: Alternate cities. Time: Third Thursday of each month.

BRONX DERMATOLOGICAL SOCIETY

David Bloom, President, 135 E. 50th St., New York.
Henry Silver, Secretary, 290 West End Ave., New York.
Time: Fourth Thursday of each month from October to May, inclusive.

BROOKLYN DERMATOLOGICAL SOCIETY

T. Chiaramonte, President, 1 Nevins St., Brooklyn.
J. Schweig, Secretary, 47 E. 61st St., New York.
Time: Third Monday of each month except June, July, August and September.

BUFFALO-ROCHESTER DERMATOLOGICAL SOCIETY

James W. Jordon, President, 471 Delaware Ave., Buffalo.
Frank A. Dolce, Secretary-Treasurer, 468 Delaware Ave., Buffalo.

CENTRAL NEW YORK DERMATOLOGICAL SOCIETY

Albert Van Vranken, President, 1565 Union St., Schenectady.
Maxwell C. Snider, Secretary, 106 Oak St., Binghampton.

CHICAGO DERMATOLOGICAL SOCIETY

Lester M. Wieder, President, 208 E. Wisconsin Ave., Milwaukee, Wis.
Marcus R. Caro, Secretary-Treasurer, 25 E. Washington St., Chicago.

CINCINNATI SOCIETY OF DERMATOLOGY AND SYPHILOLOGY

Harry L. Claasen, President, Provident Bank Bldg., Cincinnati 2.
R. G. Senour, Secretary-Treasurer, 937 Carew Tower, Cincinnati 2.
Place: Cincinnati. Time: First Wednesday of each month, except July, August and September.

CLEVELAND DERMATOLOGICAL SOCIETY

J. R. Driver, President, 1422 Euclid Ave., Cleveland.
G. W. Binkley, Secretary, 10515 Carnegie Ave., Cleveland.
Time: Fourth Thursday of each month from September to May, inclusive.

DETROIT DERMATOLOGICAL SOCIETY

Robert C. Jamieson, President, 1553 Woodward Ave., Detroit.
James R. Rogin, Secretary-Treasurer, 2306 Eaton Tower, Detroit.

KANSAS CITY (MO.) DERMATOLOGICAL SOCIETY

C. C. Dennie, President, 1103 Grand Ave., Kansas City.
Thomas B. Hall, Secretary, 902 Professional Bldg., Kansas City.

LOS ANGELES DERMATOLOGICAL SOCIETY

William H. Goeckerman, President, 727 W. 7th St., Los Angeles.
C. Russell Anderson, Secretary, 1930 Wilshire Blvd., Los Angeles.
Time: Second Tuesday of each month, October to May, inclusive.

MANHATTAN DERMATOLOGIC SOCIETY

Anthony C. Cipollaro, Chairman, 40 E. 61st St., New York.
Wilbert Sachs, Secretary, 57 W. 57th St., New York.

METROPOLITAN DERMATOLOGICAL SOCIETY

Royal M. Montgomery, President, 57 W. 57th St., New York 19.
James Lowry Miller, Secretary, 371 Park Ave., New York 22.

MONTREAL DERMATOLOGICAL SOCIETY

Paul Poirier, President, 456 Sherbrooke St. E., Montreal, Canada.
Alphonse Bernier, Secretary, 3995 St. Denis St., Montreal.

New York Academy of Medicine, Section of Dermatology and Syphilis

David Bloom, Chairman, 135 E. 50th St., New York.

George M. Lewis, Secretary, 121 E. 60th St., New York.

New York Dermatological Society

A. Benson Cannon, President, 371 Park Ave., New York.

George C. Andrews, Secretary-Treasurer, 115 E. 61st St., New York.

Omaha Dermatological Society

Donald J. Wilson, President, 1113 Medical Arts Bldg., Omaha.

Leonard J. Owen, Secretary-Treasurer, 954 Stuart Bldg. Lincoln, Neb.

Philadelphia Dermatological Society

Carroll S. Wright, Chairman, 1402 Spruce St., Philadelphia.

Carmen C. Thomas, Secretary, 1930 Chestnut St., Philadelphia.

Time: Third Friday of September, November, January, March and May.

Pittsburgh Dermatological Society

M. F. Pettler, President, 1319–8th Ave., Beaver Falls, Pa.

Frederick Amshel, Secretary, 3401 Fifth Ave., Pittsburgh.

Time: Third Thursday of every month except July and August.

St. Louis Dermatological Society

Clinton W. Lane, President, Metropolitan Bldg., St. Louis.

Joseph Grindon Jr., Secretary-Treasurer, 323 Liste Bldg., St. Louis.

Place: Barnard Free Skin and Cancer Hospital.

Time: 8 p. m., third Monday of each month.

San Francisco Dermatological Society

Arne E. Ingels, President, 490 Post St., San Francisco.

Ervin Epstein, Secretary-Treasurer, 1904 Franklin St., Oakland, Calif.

Time: Third Friday of February, April, September and November.

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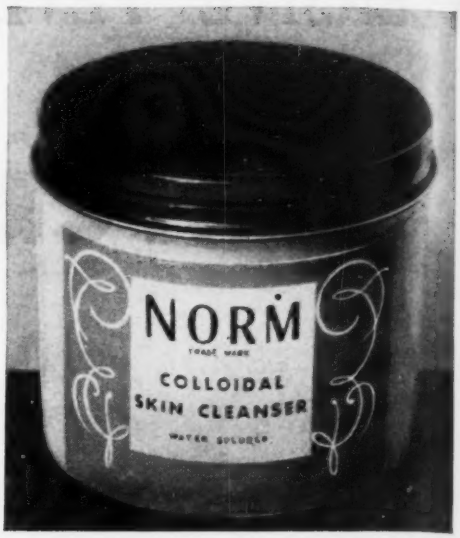

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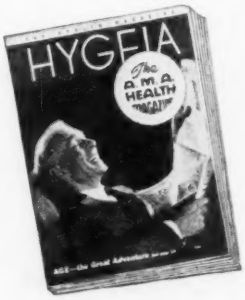

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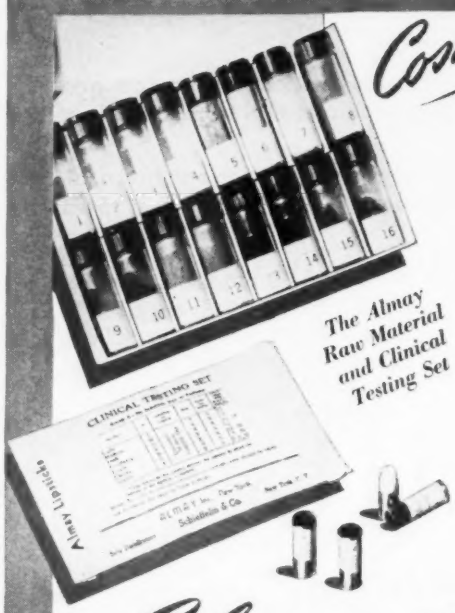

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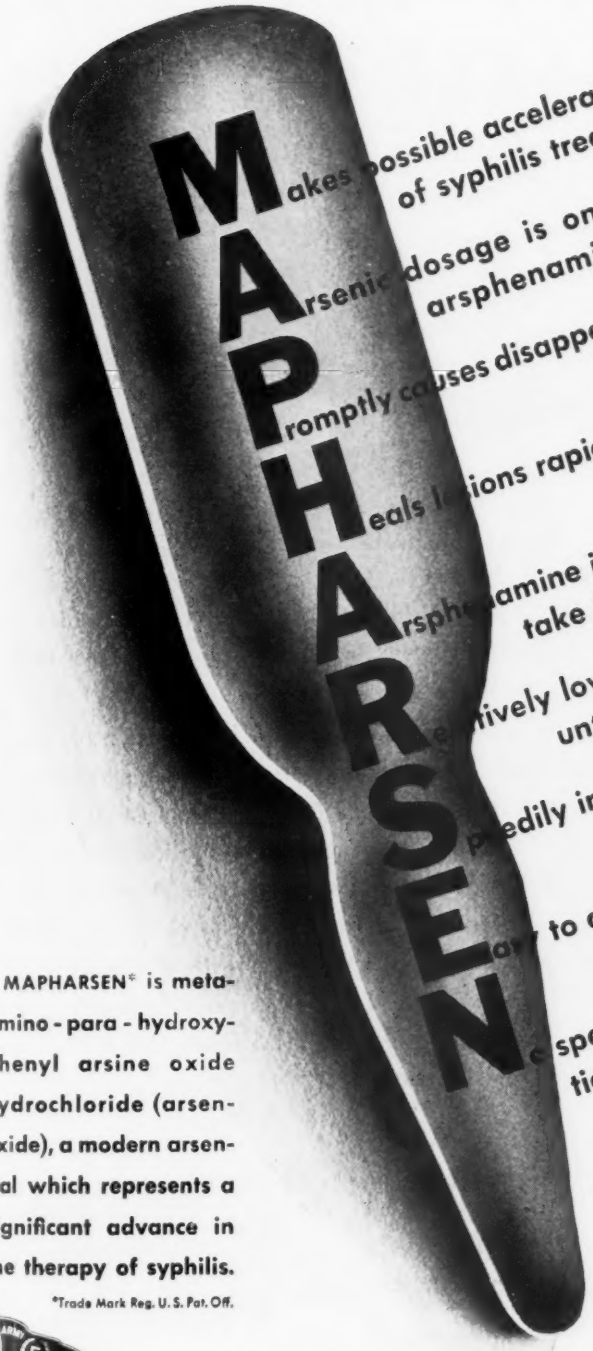
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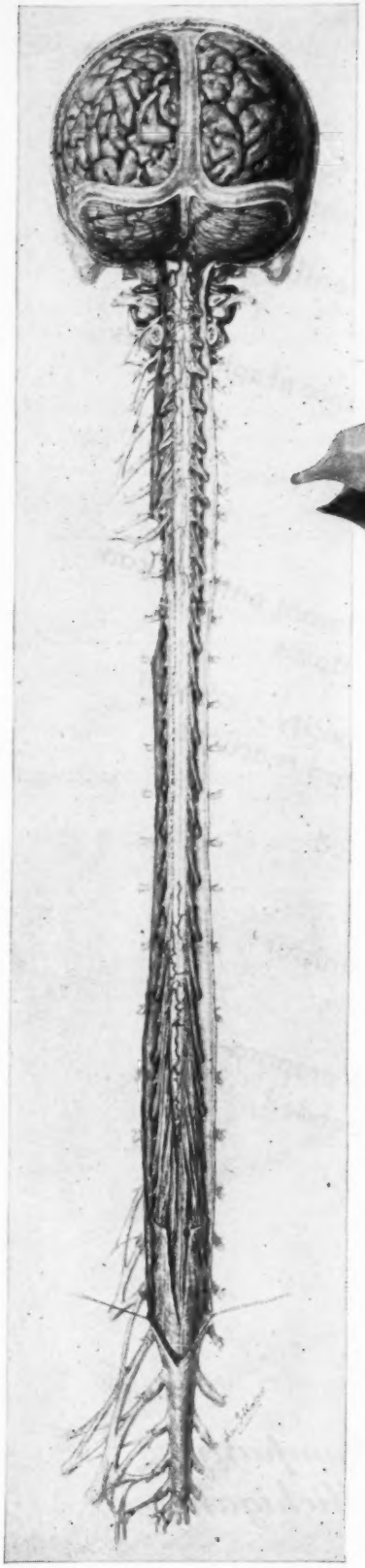

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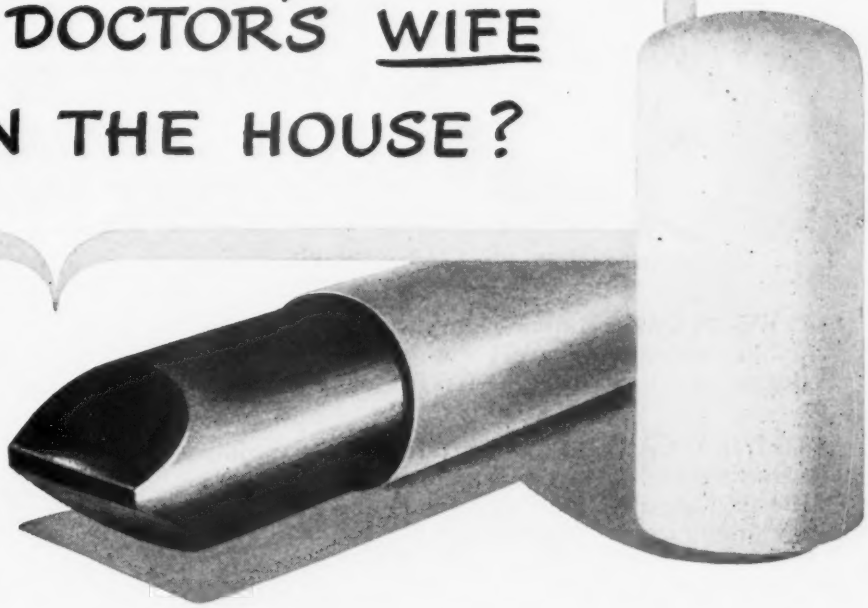

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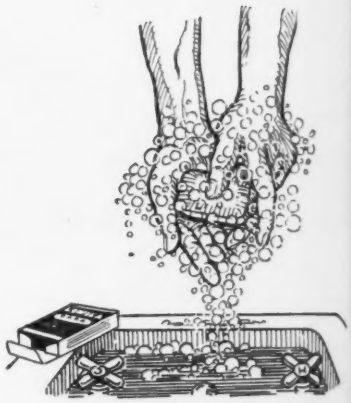

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